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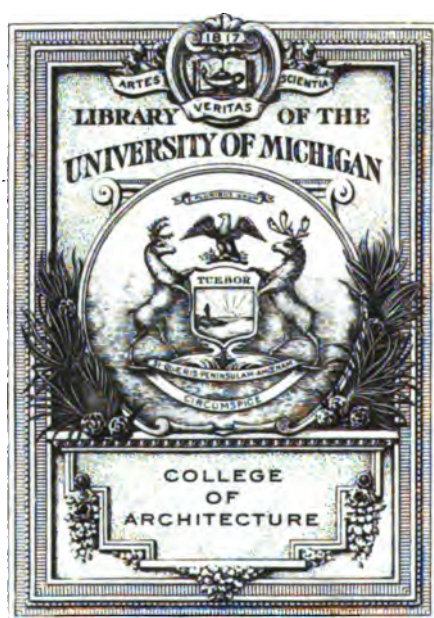
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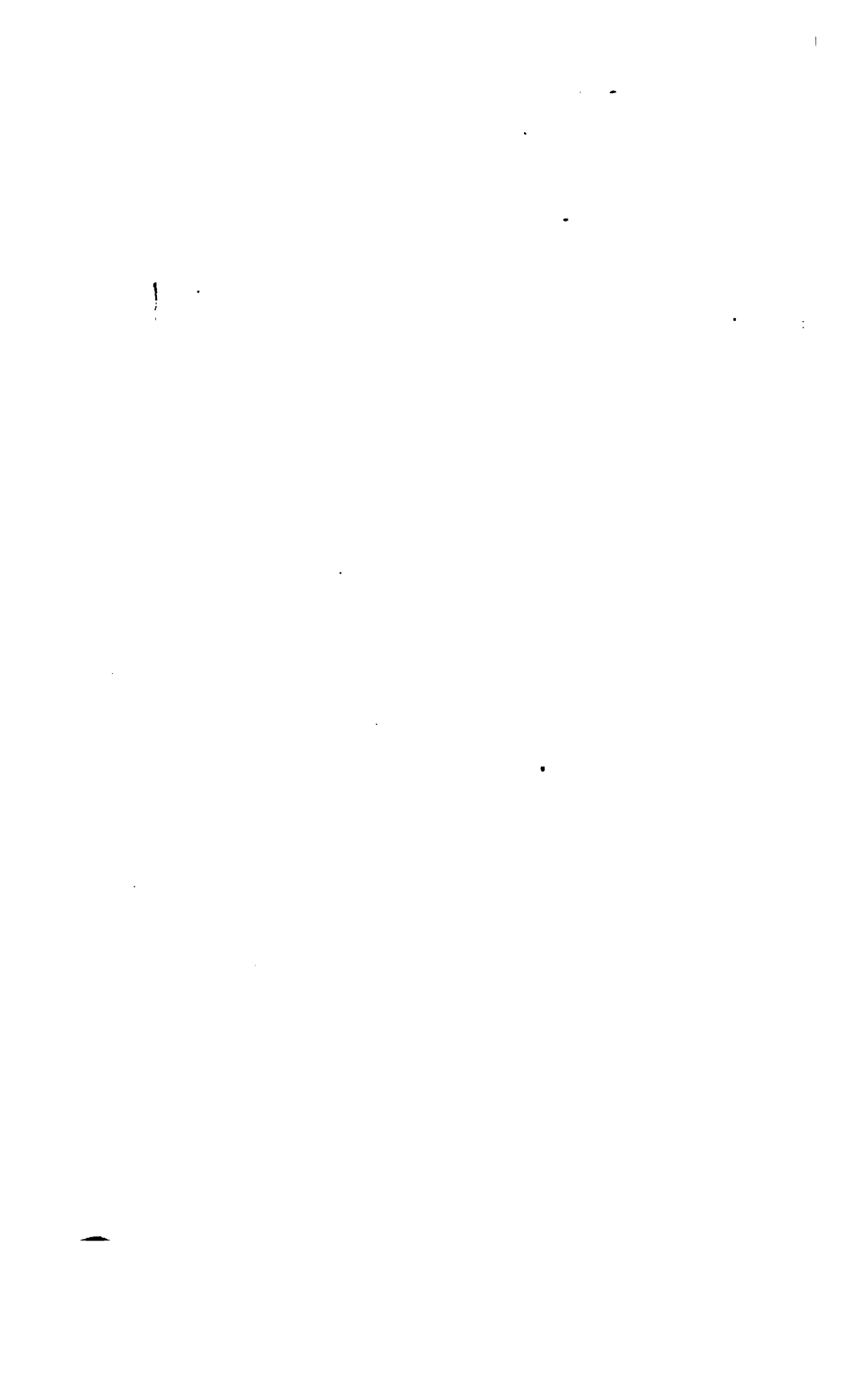
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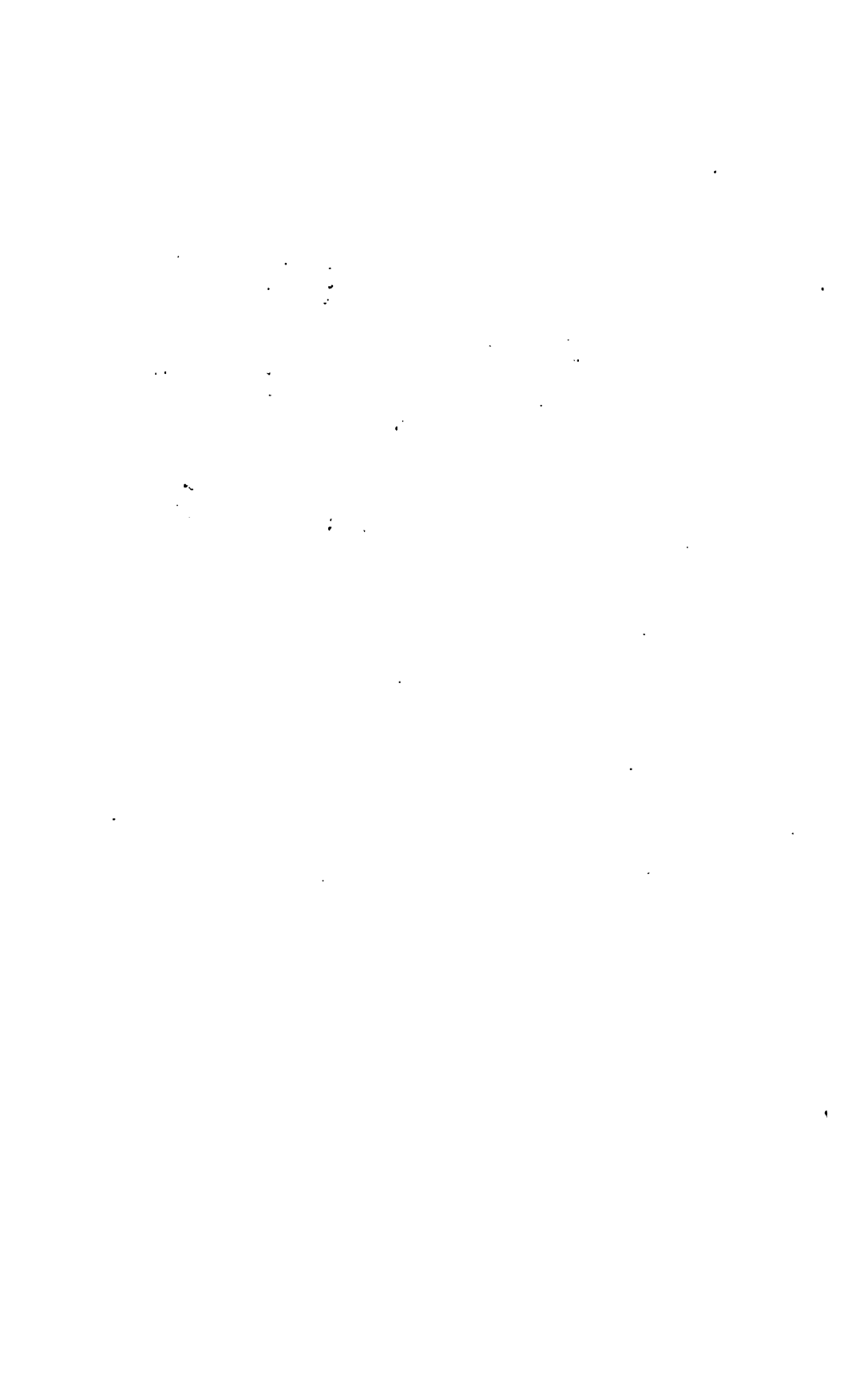
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**A STUDY OF THE ARTIST'S WAY
OF WORKING**







*S*OUTH porch of the Erechtheion, Athens, date uncertain (about 390 B. C.). The finest known piece of Grecian architectural sculpture. Restorations can be seen in the superstructure, in the base on which the caryatids stand, and in the right-hand figure. The second figure from the left is a terracotta copy of the original given in Fig. 190. See Chapters XXIV and XXVI.

THE ARTIST'S WAY OF WORKING IN THE VARIOUS HANDICRAFTS AND ARTS OF DESIGN

BY

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and editor and chief author of "Dictionary of Architecture and Building"

VOLUME I.

NUMEROUS ILLUSTRATIONS



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1910

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DEDICATED

WITH ADMIRATION AND UNDYING GRATITUDE TO THE
MANY ARTISTS AND SKILLED ARTISANS—TO THE
SCULPTORS AND CARVERS, PAINTERS AND DRAUGHTSMEN,
SILVERSMITHS AND BLACKSMITHS, POTTERS AND GLASS-
MAKERS, MASONS AND JOINERS, PRINTERS AND ENGRAVERS,
ARCHITECTS AND DECORATIVE DESIGNERS, WHO DURING
FORTY YEARS HAVE BEEN MY TEACHERS IN FINE ART

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Preface

IT is an explanatory book which is here offered to the reader. It is not a History of Art in any sense; it is a treatise on the ways in which the artist's conceptions are formed and take visible shape. No attempt is made to follow chronological order or to dwell upon the sequence of styles, nor is any attempt made to dwell upon national peculiarities of design and to differentiate the spirit of artistic work in different races of mankind. A given artistical process may be in its nature and its results essentially the same to-day as under the kings of the Fourth Dynasty. Now, it is with the artistical processes only, and what they reveal, that this book is concerned. The purpose is in every case to ask the questions: What was the artist in search of as he wrought his work of art? — How did he achieve the desired result? — to ask these questions, and, if possible, to answer them.

When artistic manual work is in the way of being done, that is to say, when an object is being made or a surface treated in a certain way by the hand of the artist, with the purpose of producing as much as practicable of beauty or effectiveness of some kind, the physical operation, the way in which the tool is handled and is made to affect the material which it attacks, is inseparable from the

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artistic purpose. Suppose that we were to try to analyze the speech of a fluent talker, who has also knowledge and ideas, and who is engaged for the moment with some serious subject: The mind of that talker is at the same time producing thoughts from his store of memories and of impressions, and drawing conclusions from those memories and impressions; it determines at the same moment the action of the organs of speech in producing certain sounds, and still, at the same moment, it is preparing the thoughts which are to follow, and almost the words in the next sentence or clause. Try to explain to the satisfaction of a person who cannot speak nor hear, but who can read writing understandingly, how the mental processes and the vocal organs work together in producing intelligible and intelligent speech, and then you may go on to explain just how the mental processes and the hand holding the tool work together in producing an original pattern or in shaping a block of wood to a decorative figure. It is to this subject that is devoted Part III, the Fine Arts of Hand-Work. There are other Fine Arts which are not directly connected with Hand-Work, and those are treated in Part IV. This is, then, an attempt to show the way in which the artist's thought seeks its expression in artistic manipulation; and also in the direction of the labors of subordinates.

There are no authorities which can be cited as having aided the author in preparing the present work, which is, in no sense, a compilation. The author's only authorities are the pieces themselves. No statement is made concerning the character or the certain or probable method of production of any work of art without the

PREFACE

immediate consideration of a characteristic specimen of that art. There is no mention of ceramic painting, except as made in the presence of valuable pieces showing all the characteristics of the best decoration; and in like manner, no mention of a piece of carving that was not held in the hand at the moment of composing the passage, no word about the essential nature of expressional sculpture, except after close consideration of the full statement made by the sculpture itself of its own nature and origin.

The undertaking of such work implies, therefore, a lifetime of familiarity with Fine Art in nearly all its forms, and in nearly all the stages of intellectual development; and, in most cases, a knowledge also of the processes employed, a familiarity gained in watching the work going on, if not in practising it. Such experience comes more easily to an architect engaged in decorative work than to most other persons; but a lifelong habit of "making notes," mental or other, has something to do with developing power of observation and a retentive memory of such things. In like manner the illustrations are taken very largely from the author's own collection; and all others have their provenience clearly stated in the legends. It will be noted that small objects are selected, as far as practicable. This is because the reproduction at the scale or nearly the scale of the original is a great advantage to the student. The objects whose size makes this impossible, the buildings, the pictures in public museums, and the famous objects of decorative art reproduced in some of the pictures are, in almost every case, familiar to the author by close and continued study of the origi-

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nals, kept in memory by the same photographs which have served for the half-tone blocks.

My sincere acknowledgments are offered to Dr. William Popper, Mr. Okakura Kakasu, and the New York managers of the firm of Yamanaka & Co. for translations of Persian and Japanese manuscripts. Thanks are due to Messrs. Tiffany & Co., Messrs. Dodd, Mead & Co., and Mr. E. F. Bonaventure for loan of works of art. All the laces are from a collection made by the house of Jesurum & Co., Venice. The photographs made from the Marquand Collection were taken, with Mr. Kirby's kind permission, before the collection was broken up and sold; and those of the A. Sturgis Collection before its sale to the American Museum of Natural History.

R. S.

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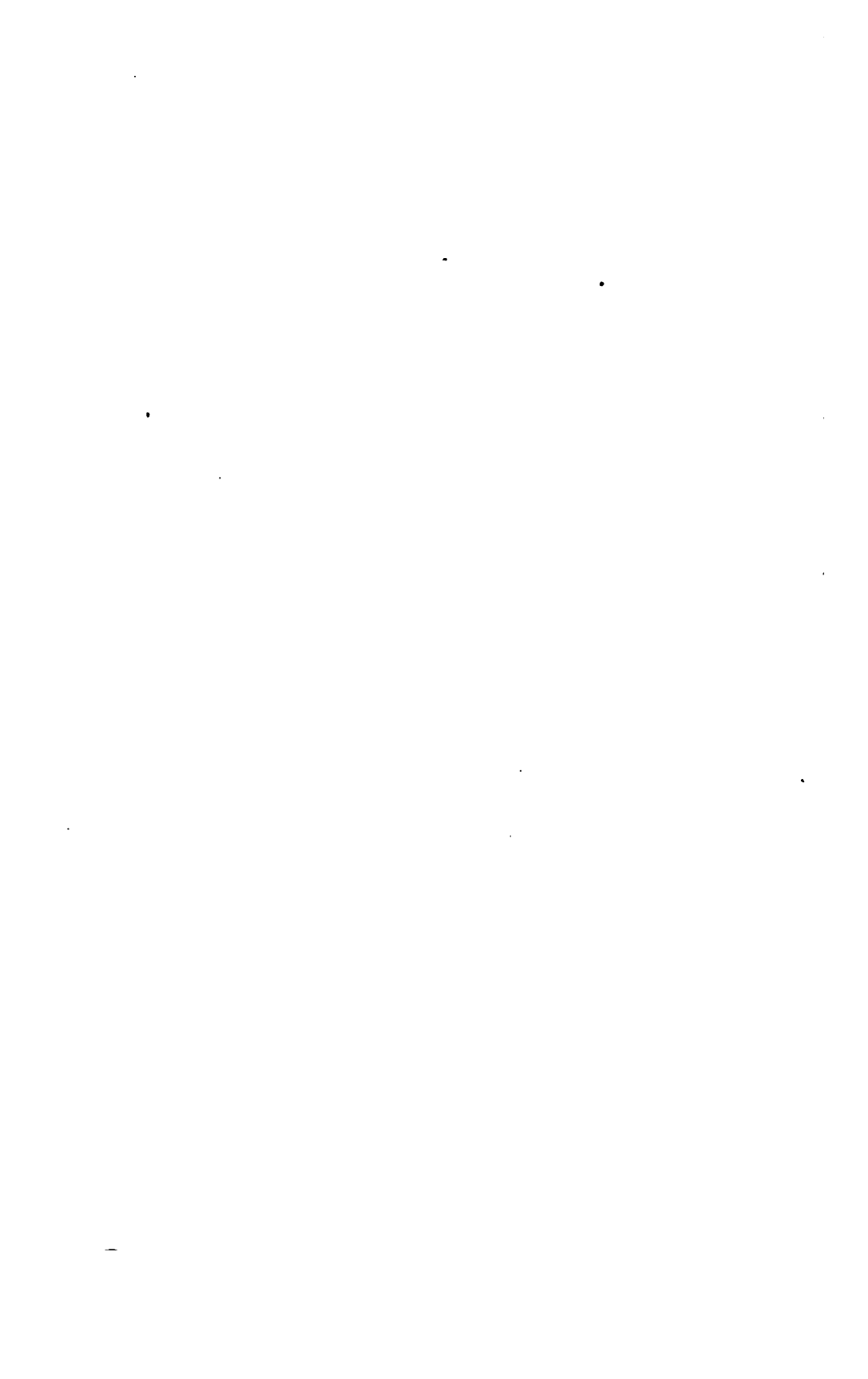
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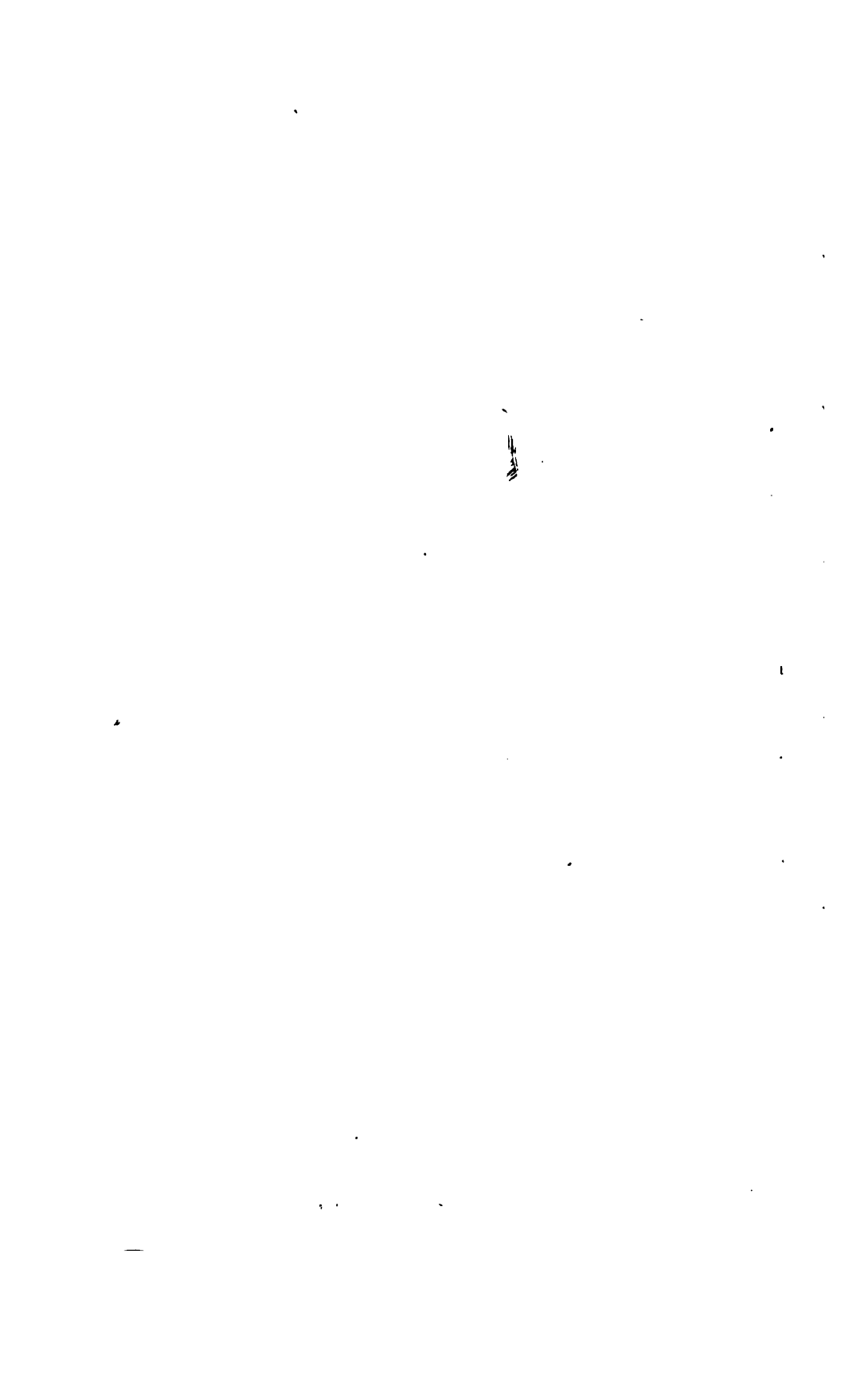
The reproduction on the title-page is the obverse of a coin of Syracuse in Sicily, of the beginning of the third century B. C.

The design on the back of the cover is a study from Renaissance scroll-work on the façade of the Church of the Certosa near Pavia.



PART I
INTRODUCTION

VOL. I — I



THE ARTIST'S WAY OF WORKING

Chapter One

THE NATURE OF THE INQUIRY

THE artist is a man who has thoughts to express, and who expresses them in a language altogether different from the language of words. The fact that these ideas are often inexpressible in words, and the fact that they are generally such as are capable of giving great pleasure to persons who understand the work are not, as it seems, essential to the nature of the artist's pursuit. In some cases the purely artistic thought may be expressible in words, or partly so. On certain occasions and to certain persons the work of art may produce the reverse of a pleasant impression; it may not even be capable of giving the pleasure which a tragedy gives—a pleasure which is already somewhat hard to explain. The sense of pain, of discomfort, which is produced by close study of certain works of art, may exceed the pleasure received from their artistic treatment, but this in no way changes their character; they are still

THE NATURE OF THE INQUIRY

works of art, because the person who has produced them has had thoughts to express, which (in the Arts of Design) he seeks to convey either by pure form, or by expression of pure form on the flat surface, and, in either, by beautiful gradations of light and shade,—that is to say, of grayness leading into white on one side and to black on the other, or by color used for its own sake, or by two or more of these means employed simultaneously. By these means are conveyed the thoughts of the artist in form and color, the designer as we call him; but also the means by which a musician conveys his thoughts are far more like to those of the painter or carver than they are to those of the writer or composer in words. Sounds may be combined for artistic effect in the simplest tune which can be learned easily and whistled on the streets, or in the elaborate orchestration of a symphony; and it is rather generally understood that the musical thoughts so expressed would be wholly inexpressible in words.

But what is a “thought” in fine art? It is not the notion that such and such form or color would be prettier, that such and such a sequence of notes would sound well; it is the unconscious creation of that very form, or color, or sequence of notes,—the taking shape in the mind of the group of parts which make up the color-harmony, the attractive pattern, the interesting pose, the sonorous and startling chord. And such a thought

is more apt to take shape and consistence when the artist has begun his work and as he proceeds with it than at any other time. Dimly it may have been perceived, but it is not complete until the modelling-tool is in hand and already soiled with the clay — until the etching-needle has made its first few cuts through the hardened ground.

The artist, then, is not a man who has thought at leisure and has gone to his piece of material with his mind made up, and prepared to do his piece of technical work. As an able thinker rises to speak “extemporaneously,” as we say, that is, without having written down the exact words which he intends to use on that occasion, and speaks fluently and to the point, forgetting little of what he would like to say, and bringing together as he goes on much that he was not thinking of when he rose, so the artist in form and color is one who renders thought with his fingers, in a way quite inexplicable to one who has not something of the instinct, together with a little knowledge of the practice of such things. His thoughts are generally expressible only in the language of the art which he is practising: and as this language is known to the outside world only by study of the work of art itself, it follows that the purpose of the artist, his mental processes, cannot be explained apart from the movement of his intelligence which partly precedes and partly accompanies the work of his hands.

If now, having a work of art before us, we desire to ascertain what the purpose was which the artist had in mind as he worked, we are compelled to reconstruct the mental processes which the artist went through. We have the result; and if we wish to know how it was reached we follow the reverse of the course pursued by the artist himself—we remount the stream in hope of finding its source. A comparison may be drawn from the well-known and often cited practice of those grammarians of the fifteenth century who gave us the grammar of the Latin tongue. Such a grammarian had the manuscripts of certain Latin authorities, and he had his experience of his own vernacular, and of several dialects other than his own, and beside him lay such unscientific and too summary essays on the construction of language as might then exist, relating to his own vernacular or those of other tongues of his epoch. With such material as this, and with no other guide, he had to create from the texts of Latin authors the non-existing Latin grammar. If he found in a manuscript the word *factus*, he had no handbook, like one of those which are always within reach to-day, to tell him that this was a mode of one and the same verb with *fio* and *feri*. The odd-looking word *reipublicae*, or *juribusjurandis* could be associated with the nominative *respublica* or *jusjurandum* only after much reading, and then by a strong mental effort. There was

no professor at hand to whom he could refer for advice or guidance. The world has no record of the hesitations and the blunderings with which the early study of grammar must have been thickly sown. Nobody has occasion now-a-days to consult the early grammars. Here and there a collector loves to have them by him to show to admiring fellow-collectors ; but it is not reported that any of them has been read since the fifteenth century. The public-school boys and the scholars alike take it for granted that a grammar is and has always been on the top shelf, and a lexicon among the larger books below. It never occurs to the modern reader of a Latin text, carefully edited, punctuated, and divided up into sentences and paragraphs, what the task was which the fifteenth-century student was compelled to undertake. Robert Browning's imagined grammarian, he whose burial is recorded in a well-known poem, was not concerned with controverting other scholars as to the "enclitic De." He found the word, the little word, the particle, in a dozen manuscripts or early printed books ; and his business was to examine the context as to its meaning and force, in each and every case of the recurrence of the word in question. Little by little his theory of it was built up, and one paragraph of the new Greek grammar had then been composed.

Very much in this way must he proceed who would ascertain the artist's meaning in a given

↓ work of art. The artist is not often capable of explaining in words what he has been intending to express in his artistic work. On the other hand, it has been found hitherto extremely difficult for any one else — for any one other than an actual working artist — to translate into words the significance of any given work of art. And yet, without such verbal expression of the artistic thought, without such translation into the language of words of the artist's own utterance of his thoughts, no criticism of a work of art is possible.

The criticism of a work of art must consist first in an explanation of the apparent and the probable artistic intention of the artist. The inquiry begins either evidently and as expressed in words, or tacitly and as understood between critic and reader, with a questioning of this sort — What may we assume has been our artist's intent? In order to meet this primary question we have to know a great deal about the possibilities. We have to know what are the mechanical processes used by artists in undertaking such tasks, and what the experience of past times has been; who has succeeded greatly and who has succeeded only in part. The question as to what else was or may be possible does not come up: art criticism has always to do with the completed work of art brought before us for our study. And this, too, must be established, that the purpose of

WHY WE SEEK FOR THE ARTIST'S THOUGHT

criticism is never to instruct the artist: the artist cares nothing for such criticism; he gets a hint or two from a brother artist and may approve or resent such expression of opinion. What he hears from the critic can never be of use to him, and it is not for the sake of the artist that the criticism is written. Art criticism exists for the sake of the outside world.

It is said above that artists are not often capable of explaining their intention in words. When they do, provided the explanation is sincere — that is to say, truthful — it is a most excellent guide to art criticism, and he who would study art should make careful note of every deliberate expression of opinion by an artist concerning his own work, or the work of others of his own occupation. But the main thing for the art student to remember is that any such expression of opinion or record of experience of the artist, will be nearly always exclusively artistic in its nature; that is to say, it will have nothing to do with ordinary sentiment or private affection; nothing to do with patriotism or public spirit; nothing to do with morality or virtue in any form; nothing to do with religion. So far as the artist cares for any of those things, he cares not as an artist, but as a citizen, as a family man, as a brother of his kind. And so a work of art may have a purpose other than an artistic one, but that is not the purpose to which the artist gave much thought once the subject was

THE NATURE OF THE INQUIRY

decided, nor is it to that subject that art criticism is directed — good citizen or careless pococurante, he may in either case have produced a work of art which it would take all our energies to criticise aright. Therefore, it is not criticism of a work of art to say, as many moralists have said, that the artist should teach this or that — should aim at this or that effect upon the world. To say that he should be a teacher of truth of any kind, a moralist, a revealer, or an expounder, or a preacher, is to substitute one set of thoughts for another, and will never result in criticism. / If you have occasion to form your own opinion of a poem, a piece of music, or a drawing, it will become you to find out first of all what the artist was really seeking for, because by much the greater part of your study must be the looking for what is. > The consideration of what might have been, or of what ought to be, must come afterward if at all; and in most cases it will not be needed at all. The criticism of the works of a new poet must of necessity be an examination of what the work is. Little does the world care for the critic's opinion as to whether it might not with advantage have been something else.

^ The student of Art must, therefore, look at a work of art many times, by itself, and also in comparison with other works of art; he must look at it patiently, not hastily deciding as to the exact thoughts which were in the artist's mind,

WHY WE SEEK FOR THE ARTIST'S THOUGHT

but distinguishing little by little the essential from the accidental and temporary. At last a fellow-feeling will begin to arise in his, the student's, mind, by means of which he can really know that at last he has ascertained in part what the artist was trying to express.

Chapter Two

THE WORK OF THE LOWER CIVILIZATIONS

THERE is no fine art¹ work that is not of civilization. Primitive man in the true sense of the word, that is, the savage who has as yet achieved very little in his search for the greater physical comfort of his life and for greater security of his life and property, — primitive man in that sense has no fine art which need be reckoned with. The savage eats and sleeps, hunts, fights, eats and sleeps again; he has no leisure, only torpor; he cannot conceive of consecutive work or of work done for intellectual pleasure. But unless work is consecutive and deliberate, and

¹ *Fine Art*: art which has for its object mental pleasure, usually of an ennobling sort: (but see page 3). The work which makes a utensil pleasant in form and color comes under this definition, and so does the representation of an object, a scene, or an incident when treated in such a way as to reach in itself an attractive and interesting result. In this work, decorative art will not be separated from other fine art. The highest mission of a great mural painting is to be decorative in the highest sense: on the other hand, the shaping of a sword-hilt into graceful curves and the adding of surface ornament to it, being good decoration, is also a fine art.

THE ART OF THE PACIFIC ISLANDS

done with intellectual pleasure, no fine art results from it. The apparent exceptions to this rule are not so certainly exceptions that they need be carefully weighed. Civilization of much complexity may exist along with tyrannical government, with cannibalism, with great social disorder. Thus, in the case of the Pacific Islands; to read the accounts of the earliest European visitants to these islands, one would suppose that those were degraded savages who fought with Cook and La Pérouse; but if we read Mariner's record, as recorded by John Martin in 1818, his who lived among the people of the Tonga Islands until he grew to know them, we find that the civilization which Mariner knew in the first decade of the nineteenth century, which Melville found in 1846, and which La Farge describes as he saw it in 1892, existed already when the overbearing and contemptuous European refused to believe that those who opposed him in defence of their own homes could be men of any civilization at all. The very interesting art of the Pacific Islands contains an indefinite number of puzzles, and the attempt to apply scientific methods to its investigation has not been, hitherto, a brilliant success. Its antiquity is unknown, the origin of its symbols and its technical methods can only be guessed; the practised student of decorative art¹ has noth-

¹ *Decorative Art*: fine art applied to the making beautiful or interesting that which is made for utilitarian purposes. Architecture may be

THE WORK OF THE LOWER CIVILIZATIONS

ing for it but to sit down before the works of art themselves and try to judge of their significance.

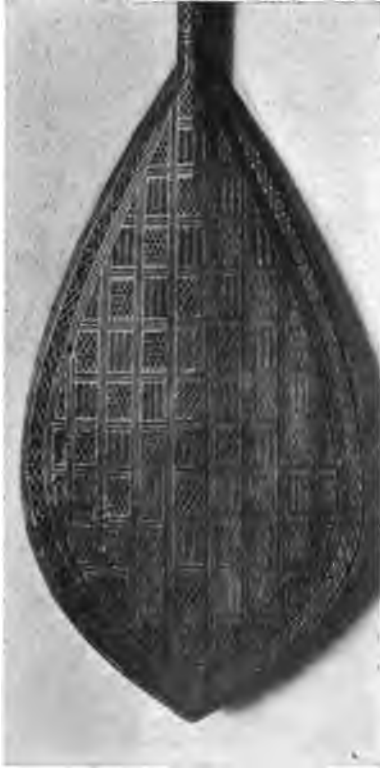


FIG. 1. Blade of Paddle, Pacific Islands

Thus, in Fig. 1, there is given the blade of a paddle. It appears that a series of incised lozenges are filled each by a ridge, leaving two triangles fitted closely together, and that a number of these lozenges occupy a parallelogram; that a series of crescent-shaped units occupy also a parallelogram, and that panels filled in these two ways alternate with one another; while a double row of small incised triangles fills the blank surfaces between the ornamental panels; that a modification of

these patterns is used for the general border, which, with singular judgment and good taste in its design, encloses the whole. All these di-

considered the chief of the decorative arts, or, it may be considered as a combination of decorative art applied to certain parts with constructional science and utilitarian devices which control the whole structure.

visions and subdivisions occupy, with the narrow bands between them, a large surface of dark red wood; they are produced by the process of digging little pits in the wood, each depression having distinctly sloping sides meeting at the bottom of the little pit. The general opinion is that such a simple carving was done with a shark-tooth, because the evidence of the use of implements of hard stone, splinters of flint, and splinters of agate, is not often traceable in the Pacific Islands. It appears also that the sharp-pointed tooth of certain voracious fishes was quite hard and sharp enough to do the cutting, and that this was exactly the tool most desirable for the rubbing smooth of the cut surfaces. Fig. 2 gives the crown or head of the same paddle that is shown in Fig. 1, as well as another of similar design. The top of each is cut square and itself adorned with a sunken pattern of considerable complexity; and it is remarkable with what accurate skill the plane of this top, taken in a general sense, is made normal to the lines of the long, round handle. A machine could hardly have cut it more squarely off. The little projections around this flat top, forming the crown, are detached from the mass by cuts averaging half an inch in depth, and these projections are separated from one another by a space smaller than this depth. The technical skill shown is considerable; and the noticeable thing about the whole is the leisure in which the work

THE WORK OF THE LOWER CIVILIZATIONS

has been undertaken, the evident willingness to spend time upon it indefinitely, the calm satisfaction of the workman who could begin a task which, as he must have known from tradition and

the example of others near him, would occupy all the quiet hours of many months or years.

Now the peculiar significance of these two pieces of work when compared one with another is in this — that the units of design of the crown are all of them studies of the human face.

It is unmistakable, it is as certain as anything can be, that the front of the human head formed the



FIG. 2. Heads of two Paddles,
Pacific Islands

- a Head of Paddle shown in Fig. 1
b Head of a much shorter Paddle

motive of this design. Not that it appears certain that the artist whose work we are considering studied the human head with any care. He may well have copied a copy which was itself the copy of a copy, and that through many steps of the development of the design; but it is indisputably true that the human head was the

origin of the design — taken up by what innovating genius in the remote past no one can even surmise. Contrasted with this is the pattern of the blade (see Fig. 1), in which it is as clear that no imitation or representation of any existing object was in the designer's mind. What he did was to divide up the surface with straight lines, and he amused himself by so doing and enjoyed the result. Here again he was not the first maker of this pattern, and in the remote past he who made the pattern which after many removes was at last embodied in this particular piece of work may first have drawn his triangles with a crumbling shell, making white marks on a smooth surface of water-worn, dark-colored rock; thus trying to make more permanent and more delicate what he had scrawled aforetime on the beach at low tide. The man who enjoyed drawing such patterns on the rock, for the rising tide to wash off again, would also feel a certain vexation that the pretty thing he drew yesterday was not in existence to-day, that he might show it to some one else. He would try then whether a harder piece of shell would cut a groove, and whether a softer surface would not admit of grooves being cut. His crossing lines would give him the pattern of triangles, and it would be a delightful surprise when somebody suggested that each triangle could be subdivided by three lines meeting in the middle. For his more enterprising suc-

cessor it was a not unnatural thing to sketch that skeleton drawing, that diagram, upon the blade of a paddle, and to make from that drawing a carved pattern somewhat like that which is represented in Fig. 1. It took a vast number of years and a long succession of artists before the pattern grew to be as fixed and accurate, and also as unchangeable, as the one before us, and before the work could be as highly finished. /Minute-ness, exactness, and precise finish came together with formalism, inseparable in this as they have been ever since in the history of human art. Such are early manifestations of the art of sculpture; the one shown in Fig. 2 being probably based upon a preliminary practice of a kind of drawing other than the scribing on the wood.

We have now to consider a multiplied or reproduced art, also based upon a piece of drawing. Fig. 3 is a pattern printed on the smooth, extended or pulled-out, inner bark of a tree, — a material known in the Sandwich Islands as tapa. This work is done, usually, by women, who print off impressions from a wooden block; but it appears that the practice of different communities differs widely in this, some of them making the pattern up from many separate impressions of a block as square and plain as a brick, while with others the block is itself carved, something as in Europe a wood engraving is made, so that each impression of the block gives a larger piece of the

THE ART OF THE PACIFIC ISLANDS

diaper¹ pattern, including indeed several of the units of design.

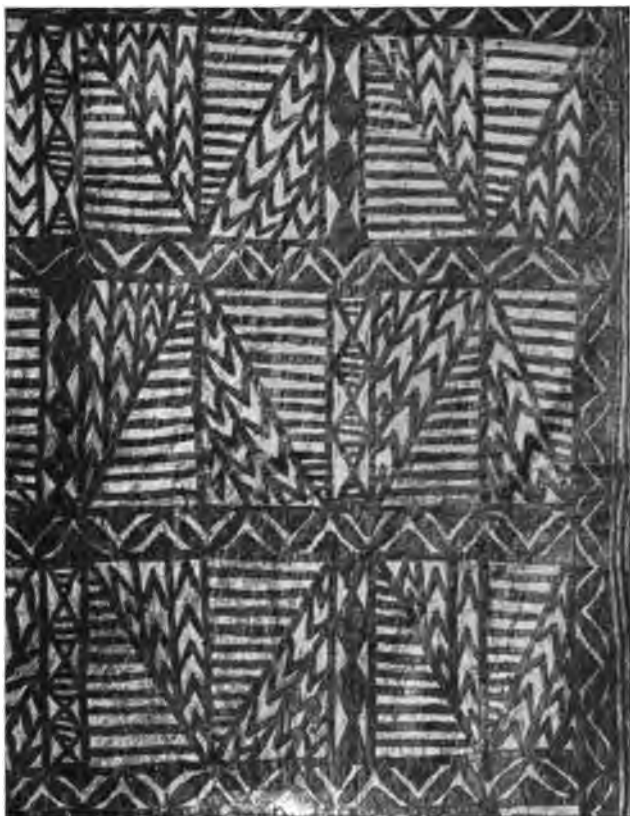


FIG. 3. Cloth made of extended bark, Pacific Islands : pattern
in dark brown printed from wood blocks

(A. Sturgis Collection)

It is noticeable that the entirely non-representative succession of straight and curved lines in flat

¹ *Diaper* : a pattern in which the unit of design constantly repeats itself, or in which two or three different units of design succeed one another.

THE WORK OF THE LOWER CIVILIZATIONS

patterns takes longer to develop, and meets the conditions of elaborate design more completely than work done in solid form. Carving or modelling is obviously a more simple and more primitive way of representing an object than drawing or daubing on the flat. Thus the "idols," or "fetishes," of many low civilizations, the amulets and symbols, tikis and totem-figures have but a far-away and grotesque representation of humanity, in which a superstitious terror has been the determining cause of the work, and has affected the design to an extent almost impossible to trace or define. In like manner the hideous deformity of a New Zealand carved head wrought upon the framed posts of a chief's house does not express the artistic feeling of the Maori people; it expresses threatening and defiance, — just as do the steel vizors of the most artistic period of Japan. Now this very readiness to express other ideas than those of decoration points to the comparative ease with which free sculpture is handled by untrained men. It is clear that it would be a much more serious effort to produce on the flat surface a drawing in line or a daubing with pigment of any kind which should resemble humanity as nearly as such a carved log represents it. For a low civilization, that would be a prodigious achievement, nor are we

other in the repetition, but always touching one another, or set in close juxtaposition. The term is connected with jasper. A design made of separate spots is more properly called a sowing, French *semé*.

ARTISTIC AND NON-ARTISTIC IDEAS

likely to find even among the curiously traditional and fixed code of laws of Polynesian society any inspiration to such an art as that. What seems an exception exists in North America: there has been noted a tendency among the red Indians of North America to produce absolutely flat paintings, sometimes on the smooth rock, sometimes on the inner side of a buffalo-hide. This often took the form of picture-writing of a very simple sort, but the question as to how early in the history of the North American aborigines this picture-writing was instituted is as yet unanswered. The tribes of what is now the United States never brought their pictographs up to the lowest artistic level in any region east of the great plains. Expressive of some ideas they were, like hieroglyphics in the proper sense, but the ideas were not artistic. The decoration dear to the North American savage of the forest region was rather that of strings of beads and tastefully arranged feathers than that which called for such abstract work as drawing: but the peoples of the country where life could not be supported by hunting were, when the white man came, somewhat farther advanced toward an epoch of decorative art.

Unfortunately, the drawings which among early peoples probably existed as guides and studies, those which were preserved as patterns for the cutter of blocks in such printing as is described above, or even the scrawls made to commemorate the aspect

THE WORK OF THE LOWER CIVILIZATIONS

▷ of a natural object, have all perished. Indeed, it is the rarest thing to find among primitive work any drawings or paintings, at all more developed than the bands or spots or zigzags of color which are scrawled upon the face or a limb of a rude statue. The decoration of sculpture by means of color is as old as sculpture itself, and the insertion of a piece of shell for an eye seems to bring with it the want of a black painted bar above, for the eyebrow ; but drawing in the sense of a staining of a flat surface with different colors, or marking it with positive lines with a view to representing a natural object or of embodying the dream of an ornamental pattern (see Chapter VII), is more rare among peoples of early civilization, than any other branch of fine art. See, however, what is said (Chapter XII) in connection with weaving of flat patterns in coarse, stout materials ; where the mechanical process employed is so obvious and simple, and the patterns produced by it are so purely decoration of a flat surface, that it differs from ordinary drawing only in the methods employed. In fact, the very existence of these woven fabrics and the evident enjoyment taken by the weaver in the patterns produced by the weaving suggest the existence, contemporaneously with this work, of drawing of the more familiar sort, scribing with the hard point and daubing with the brush, or chewed reed or bunch of fibres of some kind, and ground and wetted pigment. In

PRIMITIVE LOVE OF BRIGHT COLORS

these ways variety of color was hardly obtainable, because of the very small number of available pigments. In this fact is seen one reason for the scarcity of such drawings; for the primitive man is, at least as he begins to emerge from his lower state and begins seriously to decorate, a color-loving animal. That he may gratify his natural love for bright colors, four or five pigments are needed, and there are needed also appliances by which each of these or any mixture of them can be applied. It is not till a later time that these colors come to be carried through shades and gradations from darker to lighter, from richer to paler, or from one color into another color, as when we see, in the solar spectrum or in painting, blue pass into yellow through intermediate shades of green. That even flat painting was not feasible among any of the early races whose art has been studied seems to be evidenced from the fact that their building is so seldom helped out by color; for every tribe whose work we know as somewhat more advanced, when it has built, has also painted its buildings, and its carving has received the richest effects; see the discussion of this subject in Chapters XX and XXV and also XXIV where painted and otherwise colored sculpture is considered.

Buildings of the simpler races are also peculiarly susceptible of color decoration, because they have little or no constructional character. A hut formed almost wholly of round logs tied together,

much as the simpler builders' scaffolding of our village and country work is made, hardly reaches the dignity of architecture, not because of its simplicity, but because of the unwieldiness of the materials. If your way of building is to set up a dozen poles vertically, four heavy ones at the four corners and the other eight on the lines of the sides between those corners, and if your only means of filling in between them is to tie to the uprights other poles laid horizontally, and then to tie on a great number of sheaves of leaves, set vertically again, outside of the horizontals, in order to shed water, while the roof is covered with a thatch of cocoanut boughs, or, in the North, of marsh grass or other strong fibrous and easily matted material, you will find that architectural effect eludes you and is obtainable only by that which men of early civilizations seem not to think of, — by good proportion of roof, overhang of eaves, the width and height of the whole. If the spirit moves you to go further you must strip some of your round logs of their bark and carve in the solid wood, and then for the first time the opportunity to use color is afforded you. But in the case of such architectural carving as this — and there is plenty of it in New Zealand — the use of color seems to have been extremely limited in all early times, and the inference is that only the black obtained from soot and the red obtained from the pounding of certain clays were within

the reach of the native designer. These he would use, enhancing the effects of his incisions by the darker color, heightening the effect of his surface by the lighter color, using them both with some consideration as to the best obtainable effect, but never reaching anything like Coloring, that is to say, the pleasing effects of colors combined together so as to produce a pattern or a design.

It is obvious that modern study of primitive design is accompanied by many difficulties. The earliest Egyptian work discovered during the nineteenth century was not of really primitive times but was contemporaneous with a somewhat higher civilization. In the summer of 1901 news came of finds which must be dated fifteen hundred years earlier than those above alluded to, and still the epoch of the earliest decorative designing had not been reached. In such exceptional regions as the valley of the Nile and the plain of the Euphrates, civilization is immeasurably earlier than in more arid, less fertile and inviting regions of the earth. The development of decorative art in Egypt may prove to be ten thousand years old; and a civilization as early may well be found to have existed in the plains of Mesopotamia. Obviously, only detached and widely separated epochs of such art will ever become known to us. Then, as for those peoples which have remained in a less highly organized state, the coming of Western civilization with its abuses tends to destroy immediately

THE WORK OF THE LOWER CIVILIZATIONS

the traditional art, and even to do away with the traces of that art; for the earliest explorers and settlers, tradesmen or missionaries, are instinctively



FIG. 4. Four War Clubs, Pacific Islands

a is flat and the edges rather sharp, *b* is circular in section, like a baseball club, *c* and *d*, see text; all of heavy red wood.

(A. Sturgis Collection)

indifferent to or hostile to the habits and previous lives of the native inhabitants. Hence there may at any time arise a radical disagreement between those writers who hold that all early designing is

EXPRESSION AND DECORATIVE PURPOSE

based upon attempted imitation of natural objects, and those who hold rather to the belief in an abundant use of purely decorative patterns—patterns which the unoccupied and untaught man finds extremely entertaining in themselves. It may be held that the advocates of the former doctrine are the scientific men who enjoy the tracing out of the slow development, or degeneracy, of a pattern from a more direct imitation to a traditional pattern in which imitation is hardly discoverable. An interesting instance is in the sceptre or ceremonial staff carried by the Maori chiefs in New Zealand. This is finished at one end by a blade-like projecting member, sharp at the edges and point, and generally held to represent the tongue protruded in defiance, a theory which is made good by the two eyes and the extremely grotesque carving which stands for the lips and the whole face. So far there is representation of a natural object, but carried beyond the limits of mere copying into a recognized and traditionally accepted form for the tip of the staff; but there is scroll carving upon it which cannot be imagined as originating in a study of the papillæ of the actual tongue. No; as to these scrolls, as with the pattern on the paddle, Fig. 1, the natural man's love of ornament has been the guiding principle. There is many a war club in which the idea of offence and defiance is carried farther because made still more abstract. The marking of

THE WORK OF THE LOWER CIVILIZATIONS

the tongue as distinct from the lips and head disappears in such a staff, as it is now a deadly weapon and not a symbolical wand (see Fig. 4 *c* and *d*); the eyes and the suggestion of the lips are still definitely expressed in low relief, or in the inlay of shells.

Painting and drawing follow these same general rules; but with the severe restrictions noted above, the restrictions involved in the difficulty found by all beginners in representing on a flat surface what is really a solid, and in making anything interesting with only one color or two colors. Therefore, the painted patterns are naturally more formal and severe than the carved ones; and indeed the satisfaction which imperfectly developed races feel in the simple flat patterns is so marked that in Egypt as late as the Sixth Dynasty, perhaps three thousand years B. C., color decoration is almost limited to zigzags and diagonal scrolls.

These simple designs as far as they are rectilinear may be thought to be largely the result of the woven patterns which are often among the most brilliant works of primitive races. Fig. 5 shows grass-woven belts of the Pacific Islands; of which belts the fabric is solid, the threads drawn tight, the surface smooth; so that it is evident that the work received careful attention. Fig. 6 shows two pieces of printed bark similar to that given in Fig. 3; but in this instance the

SIMPLE DESIGN SUGGESTED BY WEAVING

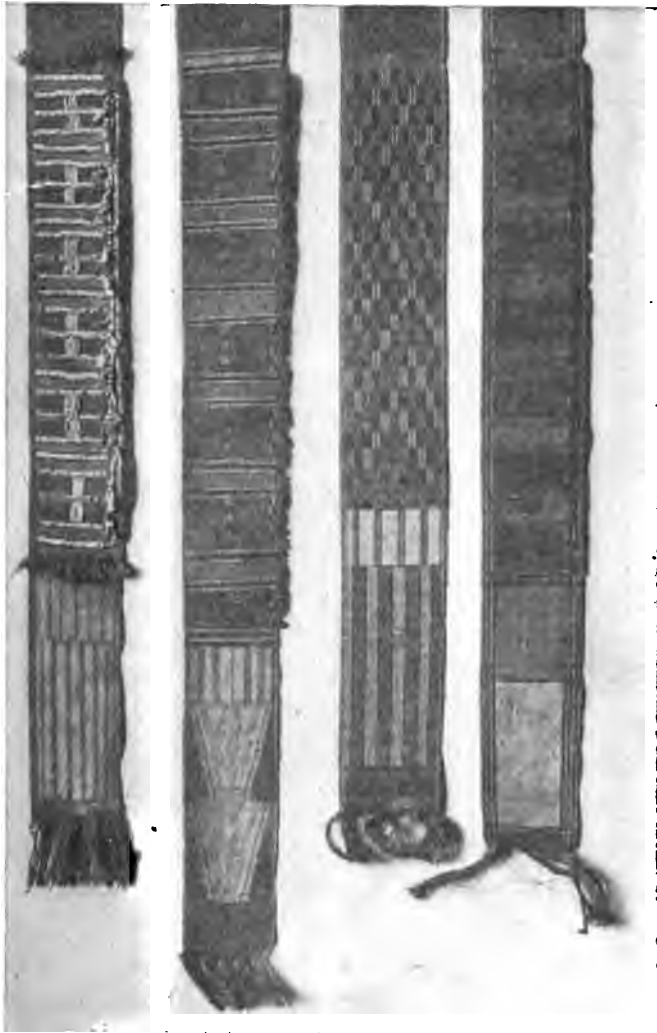


FIG. 5. Grass-woven Belts, Pacific Islands : the color is that of the undyed dry fibre combined with red and black

(A. Sturgis Collection)

imitation of a woven pattern is obvious. The blocks have been cut and the printing done ex-

THE WORK OF THE LOWER CIVILIZATIONS

pressly to imitate a piece of textile material. It is quite evident how slight a difference exists



FIG. 6. Cloth of printed bark shown on a smaller scale
than Fig. 3

b is a somewhat finer Fabric
(A. Sturgis Collection)

between a similar pattern produced by the direct
work of the brush.

PART II

THE FIVE MECHANICAL PROCESSES



BOOK II

Chapter Three

CARVING

A SIMPLE community, one where population is thin, towns small, and wealth rare, will not have workmen in special lines. There will be no skilled mechanics; but in exchange, many of the individuals who compose it will be clever with their hands, and may even have preferences as to the work they will undertake. One man is rather inclined to moulding objects in tenacious earth, and may have learned how to harden them by heat; while another prefers the sharp tool and the hard material. Even so one woman prefers the making of what may be called cloth, by expanding the inner bark of a tree, while another likes the weaving of baskets much better. Now, when the dawn of art rises upon such a community, the decorative pattern, which may also retain a semblance of visible living creatures which have interested the artist, will be sometimes the result of printing upon the bark cloth, sometimes of weaving dyed rushes or twisted yarns, sometimes of working in clay with thumbs and fingers and primitive tools of stick, and some-

CARVING

times of cutting wood or bone or shell or even stone into shapes deliberately chosen, or at least found pleasing as they take shape. This last-described process, which we call carving,¹ draws on very soon to work having some artistic quality. It is the most commonly artistic of all the simple industries. It is shown in Chapter II how easily the people of low civilization have used it and with how frequent an artistic result. As civilization grows, complexity is one of the first results of larger intelligence. Boxes of hard red wood about ten inches long are carved among the Maoris of New Zealand, the covers rather nicely fitted, the general shape rather symmetrical and deliberately neat; and it must be noted that, as in the definition above, all the surface pattern is produced by cutting away the hard substance of the wood in little chips, exactly as a boy carves his name on a bench, but with this peculiarity: that the New Zealander has cut into the surface in order to leave a raised pattern, while the letter-carving boy has chosen to produce an incised pattern. Now, the Japanese ivory boxes shown in

¹ *Carving* : the shaping of any hard substance by means of sharp-edged and sharp-pointed tools, especially when intended for decorative effect. By extension, work done in large measure by the drill is included. Carving differs from sculpture only in that it is of necessity done with a sharp tool in hard material, except where this hardness is so great that friction and slow attrition are needed; whereas sculpture, though originally having the same meaning, has grown to include the shaping of plastic material, such as modelling in clay.

DESIGN SUGGESTED BY NATURAL FORM

Fig. 7 are the direct descendants of the New Zealand pieces, in so far as the relief carving on



FIG. 7. Ivory box, total height 5 inches

the body is concerned. The curious, flower-like scrolls on the smaller box are just such an improvement upon the Maori curlicues as would be developed by an observing race after three thousand years of looking at feathers and clouds. The effect of ocean waves on the larger box is another bit of nature-study, and the cloud-forms belong to a still more advanced epoch of such observation. The rather bulky handles of this piece are made to repeat the swirls and spirals of those cloud-studies, — a subtle bit of feeling for deco-



FIG. 7 bis. Ivory box, total height 4 inches

CARVING

rative art of a high quality. As for the two human figures and the dragon, they will need discussion in Chapter XXIV, as being expressional sculpture, and the monster which forms a knop to the smaller box is beyond analysis in this connection.



FIG. 8. Sculpture in the Round: ivory statuette, eighteenth century

Carving is of several kinds, in fact it is of three general kinds; and the reader may compare a similar classification of modelled work (see Chapter IV). We have carving in the round, as it is called, that is to say, the production of entirely solid objects, as clusters of flowers or leaves, and the many carved finials and bosses of decorative art, like the knops of the two ivory boxes, busts, statues, and groups, representations of beasts and birds, and all such pieces of design as are free on all sides. See

Fig. 8, a piece of Dieppe ivory. Secondly, we have carving in relief,¹ and what is called "carved

¹ *Relief*: The character of being in projection from a background which may not be perfectly flat and uniform, but has sufficient continuity of surface to be on the whole flat and with the figures projecting from it. The terms *bas-relief* [basso-rilievo] or low relief, *mezzo rilievo*, and *alto*

DIFFERENT KINDS OF RELIEF

work" is generally of this character, as in Fig. 9, where the bust has a relief of a quarter of an



FIG. 9. Tinted Ivory Relief, 4 inches high : contemporary portrait of Henry IV of France

inch in parts, while the emblematic *fleurs de lis* in the corners are very slightly raised and the

rilievo, are not capable of exact distinction. Thus some high reliefs have parts entirely detached from the background, as the heads and arms of figures in the Parthenon metopes and in the bronze work of Ghiberti.

CARVING

shield of arms is merely scratched or engraved (see Chapter XIX). Thirdly, we have the rever-



FIG. 9 *bis*. Tinted Ivory Relief, 4 inches high : contemporary portrait of Marie de Médicis, Queen of Henry IV of France

sal of relief, or *intaglio*,¹ as in the ordinary cutting of a name, or as in the elaborate inscription in

¹ *Intaglio*: incision, inscription. This Italian term is used in the absence of an English one to signify sculpture which is hollow instead of

marble shown in Fig. 10, where the use of relief sculpture in ornament is contrasted with this incised lettering. It will be best to deal in this place with these different kinds of form, because



FIG. 10. Tomb of Sassetti : Church of SS. Trinità, Florence
(Original in the building)

it is as carved images in granite or marble, rather than modelled figures in clay and plaster or in bronze, that sculpture presents itself to us.

There are some sculptures which show a combination of two or more of these three forms.

convex, recessed instead of projecting. An impression in soft material of an intaglio would be relief.

CARVING

Thus, in the definition of relief it is stated that high relief has sometimes parts worked in the round. This occurs in the metopes of the Par-



FIG. 11. Metope Relief from south flank of the Parthenon :
head of man nearly free from background

(Original in British Museum)

thenon (see Fig. 11), where the heads are free while the bodies are in alto-rilievo. In these instances the carving still keeps the character of relief in spite of the free members of it, and this because it is treated as relief, as described in the



FIG. 12. Concavo-convex Relief : Temple of Kalabsheh in
upper Egypt (the ancient Talmis)

(Original in the building)

definitions and as explained below. Furthermore,
in Egyptian architectural work and again in Jap-

anese carvings in ivory and wood, a kind of relief is used in which the background is not cleared away, not cut down or abated¹ to the level of the least projecting parts of the sculpture; see Fig. 12, which shows a detail of the wall sculpture in the temple of Kalabsheh. Such sculpture as this is called by various names, as concavo-convex or cœlanaglyphic relief; and, technically, cavo-rilievo and intaglio rilievato.

Some sculpture in relief has many different kinds of relief in one composition. Thus, the foreground figures will be in high, even in the highest relief, and the figures in the distance in the lowest relief possible, as low as that shown upon coins, while all the different degrees of relief are used between these. There is absolutely no accepted law controlling this. (The carver is free to use his own system, and to be guided by his own instinct as controlled by a gained sense of propriety and reserve.) In Fig. 13, a piece of Chinese carving in lacquer, the figures in the boat and the boat itself are seen to be relieved upon a background of slight ridges in a pattern meant to give the effect of rippled water: while the trees and figures on the land as well as the elaborate flower on the outer curve of the box have a background of sim-

¹ *Abated*: lowered with deliberate intention to produce an artistic effect as to set off a piece of carving or the like, as when a background is either hammered back, if it is in metal, or compressed by blows as with a punch if it is wood, or cut away if it is stone.

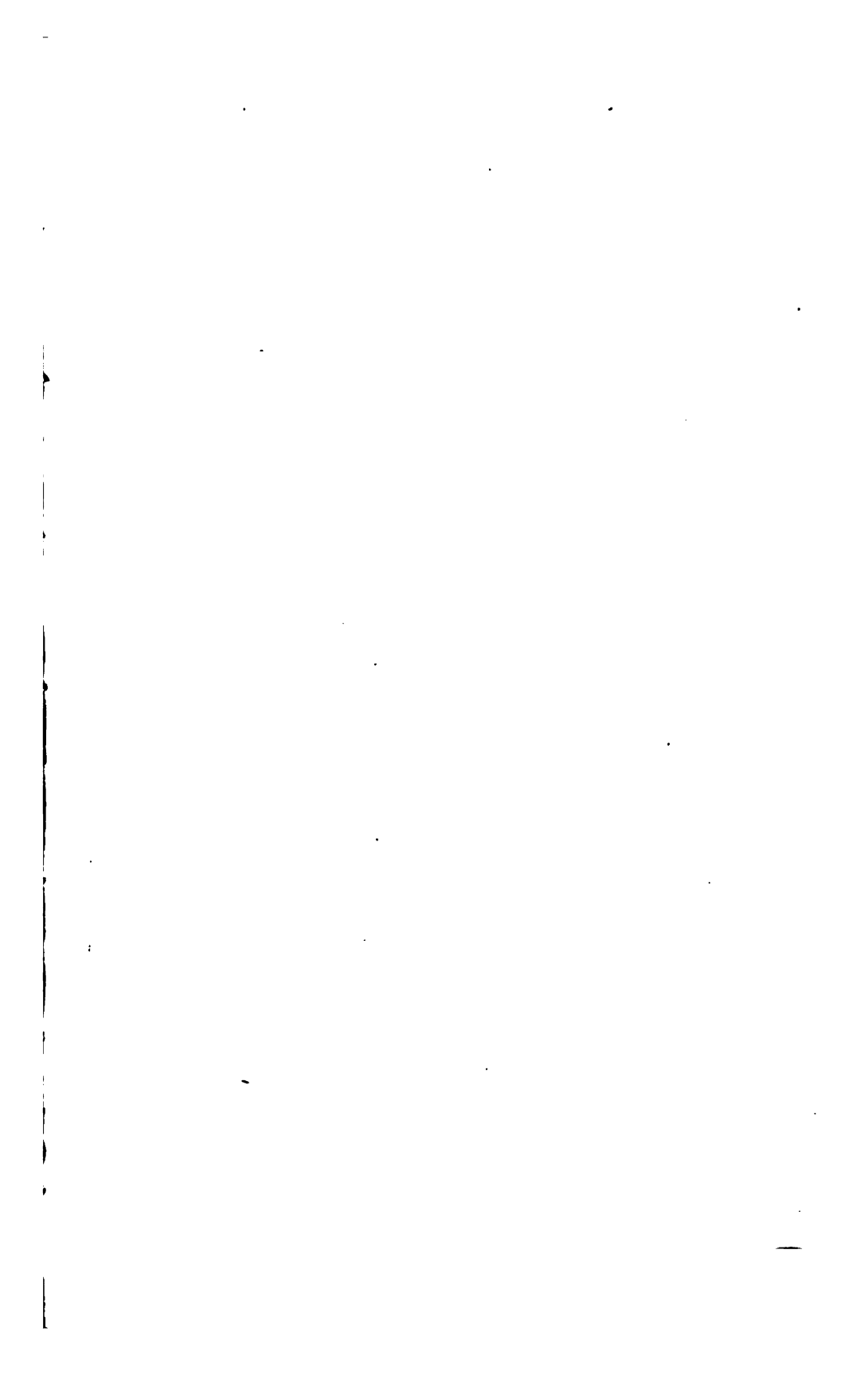




FIG. 14. Statue by Canova, of Pius VI, pope 1775-1800. Rome, St. Peter's, in the Confessio



RELIEF ON MANY PLANES

ilar character. It is all relief sculpture together, but of many planes. "Sculpture in the round" may also be accompanied by much work in relief. Thus, in portrait statues like that of Pope Pius VI in St. Peter's Church, Fig. 14, and in many



FIG. 13. Chinese box : dark red carved lacquer (*tiao-tsi*)

similar works of sculpture, the adornments of the dress and accessories (in this case ecclesiastical embroidery) are shown in decided relief.

So far, the necessary defining and limitation of the term carving has taken us; it is now to be urged that much the greater part of carving which the world has seen as yet has been in the nature

of decorative work done in a way unconsciously. The paddle described in Chapter II is an instance of the simple kind of carving in which a smooth surface is attacked by the tool, slight hollows being made in the surface; when, if relief sculpture should appear, that would be left in relief upon sunken ground. That is the actual condition in many kinds of carving, executed in different epochs. Thus the Japanese take part of the tusk of an elephant, the harder exterior cleared of its softer parts, and made into a rather clumsy decorative vase by being attached to a stand: and the surface will be carved in representation of some legend or incident with human and animal figures, the relief of which cannot rise above the surface of the tusk. Here is concavo-convex sculpture resorted to (see pages 41, 42), chiefly to save labor and to avoid weakening the material. The same thing is done on the surface of a body as thin and friable as the shell of an ostrich egg, and here is an interesting illustration of the refined boldness of such work in the hands of an Oriental artist. A scrap of ivory of fine grain is used for the head and face of a human figure, the rest of which is worked in the egg-shell itself: and this bit of ivory may then project beyond the ovoid surface: for there is no superstition in the artist's spirit concerning the prescribed limitations of this sculpture in cavo-rilievo. In like manner, the Indian carvings made to-day for architectural purposes

THE PIECE SOMETIMES SHAPED BY CARVING

and imported into the United States are so restrained that the series of bosses or clusters of leafage are kept below the raised rim or moulding which is left on either side: that is to say, the strip of soft wood has two edges left of their full thickness, while the middle band is cut away and dug out in such a way as to leave the separate units of the design relieved upon a background which the carver's tool shapes on either side of them and between them. Precisely the same method of work was in use in the seventeenth and eighteenth centuries in France, and again the same way of producing an effect is traceable to the spirited and powerful sculpture of the Gothic churches, in which one of the most common methods of architectural effect was to set leafage in distinct outlining upon a shadow, which was produced by cutting a deep hollow cove or cavetto — in long continued straight lines or curves. Thus the main lines of an arch are often emphasized by such a deep hollow moulding, above which and relieved against the shade of the hollow is a long series of clusters of leafage, rather closely studied from nature (see Chapter XXVI and Fig. 208).

It must be noted also that the carving of a decorative object often involves the shaping of the piece. Its ultimate form is not given it until the carved leafage or animal forms of the surface and the main contour are produced together. Thus

in Fig. 15 a very small cup of dark wood has two handles formed of the stems of a flowering plant, the flowers and leaves of which adorn opposite sides of the cup, coming between the handles. As the whole of this has been wrought in one piece of wood, it is evident that, until the piece was finally complete, the form of the cup had no existence except in the artist's mind. This manner of work is carried to its extreme of refinement, and



FIG. 15. Chinese Cup of dark red Wood

of skilled overcoming of difficulties in the carving, in that elaborate work in jade, rock-crystal, and other very hard stones, for which the Chinese are especially famous; although similar work has been

done in all ages in Europe and is still done, though with less frequency (see Chapter XXI). Such work is worthy of note as illustrating the last completeness of carving considered as an industrial fine art.

It is impossible to feel any certainty as to the earliest works of carving, whether they were in the round or in relief. On the one hand, the figures we buy of sailors, where the twisted root of a plant which has already some resemblance to the human figure, and has been worked into a closer resemblance, suggests an original adoption of sim-

ilar methods in the representation of the human head or body in the round. On the other hand, it is natural even to children, to the few who, in our sophisticated and school-taught epoch, show the gift of artistic observation, to model figures on the sand of the shore, which figures are, of course, in relief; and in like manner the incised pattern in Fig. 1 of Chapter II leads directly into the relief pattern given in Fig. 2 of the same Chapter, and the sailor who whittles a row of notches in the plank-sheer of his barge is producing an effective carved moulding in relief upon the smooth rounded sides of the vessel. The tendency is at once toward each of these forms of sculpture, and it may even be thought that the concavo-convex sculpture, mentioned above (see Fig. 12), is the direct result of carving begun in relief with the intention of lowering (abating) the whole background to a uniform level, but that patience having given out, the original smooth surface was left with the figures filling the bottom of a depression no bigger than themselves.

The sculpture on the fronts of the celebrated Lion Tombs of Lycia is a familiar instance of relief sculpture on a very large scale intended to dominate the country, and for this purpose cut upon the bare face of a beetling crag; but much larger designs of the same sort are carried out on cliffs in Persia, and those colossal portrait reliefs of warrior kings, thought to be of the time of the

CARVING

Sassanian dynasty in the fourth or fifth century A. D., are complete bas-reliefs, with all the background cleared away. Fig. 16 shows a similar large-scale relief of finer quality, a tomb-front in Lycia, wrought under Grecian influence.



FIG. 16. Tomb at Limyra, Asia Minor

(From Petersen and Von Luschan)

In this connection there should be mentioned the common assertion that architectural carving preceded all other sculpture; this being urged as a sentimental consideration regarding the importance of architectural art. As noted above, sculpture in relief and sculpture in the round have generally gone on together; but architectural sculpture is nearly always in relief. So far as we can date the earliest sculptures of pure Greek

character, such as the Selinus alto-reliefs, the painted bas-reliefs found in 1886 on the Acropolis, and the archaic statues exhibited in the central museum at Athens (Apollo of Thera, Apollo of Andros), these tomb-statues are of nearly the same date as the bas-reliefs. Among the painted statues found on the Acropolis in 1883 and in 1886 there are some which are as early as any Greek relief sculpture known to us; and one at least among them is a close reproduction in stone of a xoanon,¹ which piece in its original form would probably be older than the oldest Greek reliefs in stone. So with Egyptian antiquity; the free statues in wood, and even in hard mottled granite, are known to be as old as the oldest relief sculpture. Of the Fourth Dynasty (perhaps about 4000 B. C.) and of earlier reigns are bas-reliefs in wood and in stone representing scenes and giving portraits, sculpture in cavo-rilievo full of character in the heads, and wooden and hard stone statues of life-size and above it. It has been thought, until very recent discoveries were made, that the great Sphinx near the Pyramids of Gizeh was the most ancient piece of sculpture known, and this figure is cut entirely in the natural rock: for recent investigation has

¹ *Xoanon*: a very early statue of which the head and usually the hands and feet are worked into some semblance of life, while the body remains very slightly finished or even a mere block, because intended to be draped with textile material in a ceremonial way; the body, therefore, is commonly of wood, while the head and extremities may be of marble or other finer material.

contradicted the former opinion that a part was built up in masonry. It is a statue in its conception; but the forelegs and paws are of the nature of relief in that they are raised upon the background of living rock below them; and they enclose a small shrine which itself is partly cut in solid rock and is partly built. Of precisely the same character are the spoons, ladles, and trays preserved in the museum at Gizeh. In these the piece of wood is shaped to the form required for the shallow bowl and the handle of fairly convenient form, and by the same operation the bowl is surrounded by a delicate moulding of zigzags or billets, and the handle is wrought into the form of a woman surrounded by lotus blossoms and stems, or a nude figure, whose outstretched arms serve to support the bowl, or some equally elaborate combination of significant forms. The fact seems to be that the early carvers worked, now on a separate block of wood, which they meant to fashion into human or other form, now on a larger surface, as of smoothed rock, on which they meant to cut a design at once representative and decorative, and suitable to the tomb or temple hollowed out within, or the simple receptacle or utensil needed. In Assyrian art we know almost no sculpture but low reliefs in slabs of alabaster and gigantic figures of bulls, winged or human headed, which, though apparently statues, are really reliefs worked on two adjacent sides of a solid block, as

where four legs are shown, as of necessity, in the side view, but also two legs in front. Much earlier than this, however, are the separate statues found in southern Mesopotamia and identified with Chaldean art, such as existed centuries before the Assyrian empire was established.

As to the processes employed, the carver is sure to use the tools by means of which other workmen less concerned with artistic design are working around him. Thus, the reliefs of the Lycian tombs (Fig. 16) have been worked with just such pointing tools¹ and chisels² as were used by the workmen who cut in the solid rock the hollow tomb within and the square doorway leading to it. As the rock is harder or less hard, the use of delicate chisels, not unlike the pointing tool but much more slender, and with short, straight, sharp edges, is less or more practicable. In the soft limestone of the Paris basin, so much used in the north of France and imported into America under the name of Caen stone, delicate tools like these can

¹ *Pointing Tool*: called also point; in modern times, usually a steel bar or at least an iron bar with a steel point, sometimes pyramidal. With this the first cutting of a rough stone is done, for the workman goes around the edge of the stone, keeping the level surface which he has produced in a true plane by means of a straight-edge or rule at the corners, and also cuts two diagonal grooves across the face of the stone from corner to corner, the straight-edge working in these also, and enabling him gradually to bring the whole stone to a true plane surface.

² *Chisel*: in stone cutting, either with a straight-edge, or with a number of teeth. The first is more commonly called the drove chisel, from the peculiar nature of the work produced by it; the other, the tooth chisel.

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be used, and the carving done as if one were working in alabaster. Very light taps of a wooden mallet are all that is needed to impel the chisel.



FIG. 17. Portal of Chapel at Convent of Batalha, Portugal

When elaborate carving is being made in limestone the blows are not more noisy than those of a woodpecker on a tree ; and frequently for a moment the mallet is abandoned, and the chisel used nearly like a knife-blade (which itself may be used at times)

to cut and scrape away small excrescences. Very elaborate carving is apt to come of the use of a harder and close-grained stone. Fig. 17 shows the portal which, in the convent of Batalha in Portugal, leads from the little court east of the church into the marvellous "unfinished chapel;" and it is plain that the builders were well-advised who chose a stone which has held its sharp edges, its delicate finish and its elaborate undercutting for four hundred years. On the other hand, in hard rock, chiselling is so slow and painful a task that, even admitted the constant use of the stone-saw and the drill with emery or diamond powder, much conjecture has existed among modern archæologists as to the means employed to work the diorite and basalt not uncommon in Egyptian sculpture.

Lapidaries work in still harder stones — jade, agate, rock crystal, and the like — by means of the drill. This instrument bores smooth, round holes by the friction of a sharp-cutting powder applied to a pin, which is not necessarily of very hard material. Cameo work in stone and glass, although in relief, is mainly done by the revolving drill and the revolving wheel; that is to say, all this sculpture in very hard material is not so much cut as it is worn and rubbed — friction being substituted for the cutting edge. Holes that are bored by the drill leave between them solid walls of the material which have to be partly cut, partly broken away; and here again the work has to be finished by the fric-

tion of diamond dust or emery applied to the hand-held tool. We know that gem engraving (see Chapter XXI) in the most ancient as well as in recent times was done in this way. The inference is that similar processes, involving the slow work of many months, were largely used, even in colossal sculpture.

On the other hand, carving in steel — for some very exquisite decorative work of the Middle Ages and of the Renaissance was produced by working in the surface of that metal — is not extremely difficult (see Die-Sinking, Chapter XXI), though it is of course never clear how nearly the metal has been shaped originally, as by casting, so as to approach the finished shape in its details (see Fig. 18). The Japanese of the eighteenth and nineteenth centuries worked in bronze with extreme delicacy, and it is evident that the finest pieces of this work are cut in the solid metal with but little help from casting; that is to say, the general form is got by careful casting in well made moulds, but all the surface as it comes to us has been elaborately finished with the tool. It is evident that your casting may be so fine as to leave only surface work to be done by the tool. In such working in the solid mass the names of the tools and their appearance differ very much according to the material. Thus, in metal work, the chasing tool, of which more is said below in the chapter on metal work, passes insensibly into

PROCESSES USED IN METAL-WORK

the chisel in the usual sense, and the surface, if sometimes got by cutting away the metal, is got also by lowering it in the usual way of chasing.



FIG. 18. Lower half of wrought steel Door, 18 inches wide, fifteenth century

(Burlington Fine Arts Club, 1900)

The work of the engraver should be compared with this (see Chapter IV and Chapter XXI), for engraving always consists in removing the material.

There is, then, no great difference between the work of him who is cutting away the stone rapidly and knocking off big chips, and of him who is

delicately removing in the form of fine dust the superfluous material from the surface of marble, or in little curls or shavings from a surface of bronze ; and no essential difference between this work and that of the lapidary with his drill. In one respect, however, the processes differ very greatly, and that is in the kind of preparation which has to be made, and the care which has to be taken in advance to keep the workmen from vain and destructive work in a material which is too precious to be wasted, and also at a loss of valuable time. Thus, when you see, cut on an obelisk in a cemetery, a small panel sunk three-fourths of an inch below the surface of the marble and enclosing a bunch of flowers in bas-relief, that piece of work may probably have been done with nothing to guide the carver more elaborate than a simple drawing in lead-pencil or pen and ink on a sheet of paper, and of the same size as the carving ; but, in the case of a very large piece of work, no such full-size drawing would be available, and in the case of the Lycian and Persian rock-reliefs we can hardly imagine a pliant material of parchment or made of vegetable fibre procurable in sheets large enough to allow of any such drawing being made (see definition of Cartoon). There can be no doubt that the Lycian figures were outlined in stiff color, probably red, on the smooth face of the rock, and this was probably done from a sketch which the artist may have made in small, while the carver then went

SURFACE FINISH

to work lowering the background until he was satisfied with the amount of relief, which relief he then proceeded to finish by cutting away and rounding the bounding edges, — a slight and unsophisticated way of work which, however, it is well for us to note, because it shows the essential nature of relief sculpture. Such sculpture is not made like a half statue; it is, on the other hand, primarily, like one flat thing projecting from another flat thing, but rounded slowly as to its principal surface and more abruptly as to its edges, which may even be undercut,¹ and project, so as to throw sharp-edged shadows — though this is not a common treatment.

The surface finish is important in all carving; and carving can never be described without an account of this. In all the harder materials the carver is apt to seek some approximation to polish.²

¹ *Undercut*: left in the solid, “in the round,” by having the material cut away between it and the background; said of part of a relief (see the definition of relief), or in simple architectural ornament, of a moulding or the like where the stone or wood overhangs, throwing a very decided shadow upon the space hollowed out below.

² *Polish*: such smoothness of surface as reflects rays of light in a noticeable way, and which, when carried further, will reflect objects visibly. This may be produced by mere smoothness, however brought about (as when the amalgam of mercury laid on the back of a sheet of glass takes its smoothness from the glass itself), or by the addition of a liquid or paste which fills up the minute irregularities, the pores, etc. When varnish is applied, the surface is simply covered by a material which easily takes a perfectly smooth, glossy surface itself; but the term “polish” is often used in contradistinction to varnish, as when a lover of old furniture says that he cares for polished wood and detests the furniture of the times when they used varnish freely; see definition of patina.

This is carried to the furthest point in carvings in jade, crystal, agate, and the like, as has been stated above.

Marble statues and busts were often highly polished in antiquity and in the neoclassic¹ epoch. Indeed, the Greeks and the artists of the Greco-Roman period, whose most important works were generally put into bronze for the temple or monument to which they were first attached, could hardly have preferred any other surface to that perfectly uniform and shining surface so easily obtained in the bronze casting when properly finished by hand. The modern disposition to object to a high polish on the surface of a statue or bust is founded largely on a fancy that it looks "unnatural." The notion is that the carver should try to imitate the surface of the human skin; and in this connection one is reminded of the alleged invention by the sculptor Vela of a special tool for cutting the surface of the blanket which envelops the lower part of the figure of his

¹ *Neoclassic*: having to do with the attempted revival of the artistic feelings and processes of classical antiquity. In Italy the neoclassic period begins with the closing years of the fourteenth century. In the north of Europe, about eighty years later. It may be thought to have ended with the wars of the French Revolution and the rise of contemporary European civilization. During those years, from 1420 to 1815 in Italy, and from 1500 to 1780 in France, no building was begun with other thought than that of pursuing the course of development of a previously well-known style, while changes, and what were considered improvements, came in gradually: the reference to antique art being always slight and generally mistaken in essentials.

Last Days of Napoleon. Sculpture has to do with form alone; a statue is a true copy of the human form, or of so much of it as the sculptor finds that he can express, but it is in no respect a copy of the human body, and still less can it be a copy of the garments worn upon the body. Beautiful and interesting form is the chief thing sought for by the sculptor of the human body and its parts, and a similar truth exists with regard to all kinds of carving. The twig of leaves on a jade vase is not imitated from nature; it is a decorative adjunct carefully studied from nature, the study going no further than the carver finds he can go easily in rendering the diaphanous leaves and the slender twigs. But, as before said, beauty of surface is an immensely important adjunct, and this may be gained by mere perfectness of finish, or by color, as is explained elsewhere.

It is also not uncommon to use relief and also intaglio to represent that which has no form in reality. Thus, to give the effect of the pupil of the eye, the sculptor sometimes abandons truth of form, which would require an absolutely unmarked rounded surface to the eyeball as seen between the lids, and cuts a deep, partly circular groove, with perhaps a central pit to express the pupil of the eye. In this way the effect of life is got by contradicting the facts of life; and such conventions are very common in sculpture of all sorts. They were rendered necessary in expressional work by

the abandonment in late times of painting applied to the carved figure ; but even while statuary and relief were freely painted, as in the Gothic period, these conventions were used to secure greater emphasis.

✓ It is noticeable how little in all times the artist in carving has been influenced by the nature of the material. The surface of the carving in wood, especially in open-grained wood like oak, differs greatly from the surface of the carving in stone, and still more from the carving in the hardest or finest grained stones ; but it is ~~as to the surface~~ chiefly that the artist finds an interest in the peculiarity of his material. As regards his treatment of the subject, that is so strongly affected by the artist's own sense of what the form must be, his own design as conceived by himself, his own idea of the human body, the plant or animal as he sees it in his mind conventionalized and prepared for rendering in carving, — all that is so much more important to him than any question of material, that he is apt to force his material, whatever it may be, into a semblance of his dream. In details only is there much difference in the result of carving in this or in that material. It is sometimes said of the drapery of an antique marble statue that it is visibly a copy of the bronze original, the drapery being disposed as the designer for bronze would naturally have cast it. Too much must not be made of this tempting subject ; there is

REFINEMENTS OF SURFACE FORM

not a single bronze in that wonderful collection at Naples of life-size busts and statues, all of unquestioned and unaltered antiquity, not one which could not be copied in marble or in boxwood with perfect success, the archaic treatment of some ringlets of hair alone excepted (see Fig. 58).

Refinements of curvature are, however, of the very highest importance to the artist. The carver loves delicate modulations of surface for their own sake, and not merely because they represent the cheek or the wrist of the fair and perfect human body. The natural beauty of the shades with which the light falling upon the piece invests the retreating and projecting surfaces, the combinations and gradations, passing from the highest light to the deepest shadow, which the piece allows and which form our only means of judging by the eye of the surface of anything, are of supreme importance to the carver and to the student of the piece of carving as well. The story of Michelangelo in his nearly blind old age caressing with his hands the famous Torso of the Vatican, and getting through his finger-tips a sense of its beauty, whether verifiable or not, is perfectly credible. Even as this sheet is in hand, an intelligent possessor of a fine modern marble says to the present writer that his piece shows finger-marks—he sees it with his hands, mainly. A blind man born with an artistic sense may be imagined as

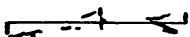
creating an artistic judgment of his own, and as determining between two pieces with regard to their relative merit ; but it is perfectly certain that a man who has not always been blind, and has learned through the eye to love artistically treated form, could receive enjoyment by the touch, and could even, within limits, compare the beauty of different pieces of carving.

All these questions of artistic treatment of form belong to modelling as well, and are treated in that connection in Chapter IV. The truths with regard to such artistic conceptions, and the appreciation of them by others than the artist who has created them, assume a different aspect as each separate process of work is considered, and therefore what appears to be repetition should be a necessary restating of the case for the new conditions.

Chapter Four

MODELLING¹ AND EMBOSSING²

BY a curious twist of the meaning of "plastic," the term "Plastic Art" has been applied to sculpture in general. This involves the recondite idea that even hard materials are plastic, in that they can be given shapes as diverse as those which can be given to a soft material. Except in that sense, the term "plastic" continues to mean that which can be changed in form without destruction of its essential nature; thus a piece of wax in cold weather is hardly plastic at all, as it will break if



¹ *Modelling* : handling a plastic material so as to change its shape in a deliberate way; especially with the purpose of obtaining either an artistic effect or a shape of some sort from which something else is to be copied. It includes the making of models when they are of plastic material; and therefore the shaping of a member of a structure in clay or wax, with the view to making a mould and casting from the mould, is modelling, as well as the work of the artist. The making of models, in the sense of copies on a small scale of the finished or unfinished structure, as of a public building, the purpose of the model being the description of the building to those who cannot see it, is hardly ever called modelling; it would be rather model-making.

² *Embossing* : properly the forming of relief or projection (a boss or bosses) upon a surface; in fine art, generally, the raising of relief patterns by other means than carving. Thus, sheets of metal are embossed by hammering on the back (see Repoussé).

it is pressed too hard, but it grows more and more plastic as it is warmed, and finally becomes capable of taking and keeping any form that the modeller may choose to give it.

In the modern practice of the art of the sculptor, the artist works almost altogether in some really plastic material, the copies of his work in hard material being usually made by others than himself. This subject is treated in Chapter XXIV; our present purpose is with that kind of modelling in which the handiwork of the artist is shown as he left it, nothing modifying it except exposure to great heat, as in pottery and in glass, or some other preservative process. All kinds of ceramic ware depend for much of their interest on the work of the modeller. Even a plain vessel of rough clay is of finer or of less interesting form, according as the modelling is or is not that of a man of taste and of creative energy. The use of the potter's wheel is merely a simplification of the natural movements of the hand when trying to get a circular, horizontal form for any vessel. Thus, if the potter were working without a wheel, as is often done in pieces intended to be especially free and bold in design, like many cups and bowls in modern Japanese art and European imitations of it, the mass of clay would still be set upon a piece of board, a tile, or the like, and the natural action of the artist would be to turn this round from time to time as rapidly as the fingers of one

PROCESSES EMPLOYED

hand would enable him to do it, while the fingers of the other hand would shape it within and without. The potter's wheel, whether moved by the hand or by the feet, is a mere device for turning rather more rapidly and much more steadily the plane surface upon which the vessel is being shaped. If now, to the vessel so formed, a handle or spout is to be added, which addition is to have considerable artistic character, that must be worked into shape by the fingers and thumb, with the aid of a small and light piece of stick more or less carefully prepared for the purpose, or it must be pressed in a previously made mould. Both of these processes are in common use. The mould tends toward uniformity and therefore toward monotony. Freehand work involves the taking of so much time that the tendency would be to abandon ornament altogether in the case of pieces that had to be multiplied, or else the comparative disregard of their quality as pieces of modelling, and the abandonment of any high standard of merit. Pieces of ceramic art not turned on the wheel must of course be modelled throughout by the hand or by means of moulds. Thus, the *rhyton*¹ of Greek archæology is commonly made in the semblance of a deer's head or ram's head (see Fig. 37), and there is nothing to prevent a mould being made, either for the whole of the head

¹ *Rhyton*: a drinking vessel so shaped that it cannot stand erect and contain the liquid contents.

MODELLING AND EMBOSSING

outside of and beyond the horns, or two moulds, one for each side of the head and neck, which in that case may be moulded wholly except for the



FIG. 19. *La Danse de l'Écharpe*, by A. Léonard. Figures in Biscuit of Sèvres Porcelain
(Sèvres Exhibit, Paris, 1900)

horns themselves. Studies of the human figure, of animals and the like, are modelled directly from memory or in the presence of the object represented. The sculptor of human and animal form makes studies in colored wax, a lump of it carried on a short stick. Then again, as the plastic

PLASTIC MATERIAL HARDENED BY HEAT

material does not suffer from repeated handlings, and as it is scarcely more trouble to model roughly a whole figure than one part of it, the modeller is often seen to break up the whole of his partly completed work and begin again, the work that he has done sufficing to fill his mind with the preferred form on which he has decided, and to steady his hand for its completion. The terra-cotta images found in the ruins of Tanagra in Greece, in the neighborhood of Smyrna in Asia Minor, and in other Greek lands (see the Sicilian examples, Fig. 187), the groups of the same material made by Clodion and other masters in the eighteenth century, the portrait busts not uncommon in the Paris annual exhibitions during the last twenty years of the nineteenth century, and the pieces of porcelain biscuit, such as those shown in Fig. 19, are all works of ceramic art¹ of the highest kind, that is to say, they are of baked clay, but modelled directly with but the slightest use of the mould, or with none; the hand and the modelling tool of the designer producing the actual forms which we admire, with only such change as is caused by a shrinkage in the drying out of the clay and the subsequent

¹ *Ceramic Art* (Keramic Art) : the art which has to do with objects made of clay, and, usually, of baked clay, or of any compound imitating natural clay, and capable of being hardened by the heat of the potter's oven. Ceramic wares are pottery, which term is used in a general sense, and also in the sense of the coarser kind, excluding porcelain, stoneware, faience, terra-cotta, and other fine varieties.

baking or firing. Fig. 19 shows two statuettes in biscuit of hard porcelain of Sèvres, modelled by Léonard for the National manufactory and exhibited at Paris in 1900. They are part of a set of *danseuses*; each figure standing about sixteen inches high. These pieces are complete; the originally modelled form has been fixed by the heat of the kiln. In Fig. 20, however, the clay model of a monument to Watteau is shown as it left the modeller's hand; or, if the drying of the piece has been aided by artificial heat, the piece still remains the mere first study of a composition to be erected in large, and in some enduring material. In other words, this is not a piece of ceramic art; the modelling is in wet clay; its perpetuation in its own size and conditions can only be by means of a cast in plaster or other hard-setting material.

The work done in baked clay for buildings as in the moulded bricks which were used extensively in Italy in the twelfth and thirteenth centuries and later, and those which were made during the second half of the nineteenth century in England and America, is produced largely by means of moulds, into which the clay is forced under a great pressure; and this for the double purpose of giving to the work that sharpness and accuracy of detail which modern taste is supposed to require, and the possibility of multiplying each pattern somewhat rapidly and with perfect uni-

PLASTIC MATERIAL NOT TO BE HARDENED

formity. There is, however, nothing to prevent the use of entirely free and original modelling of



FIG. 20. Study in clay, monument to Watteau, by Lormier

each part. A house might perfectly well be built in which every external ornament should be

modelled especially for its place, and this by the hands of the owner if he were so minded, or by a sculptor in his employ. What is called terra-cotta¹ is governed by the same conditions exactly. In all such work the artist's idea of the architectural sculpture needed is embodied in modelled soft material instead of carved hard material. The firing, or baking, is merely a device employed to make the soft material hard and permanent. The necessity of using heat brings with it some precautions which must be taken, lest the shrinkage of the work throw it out of all form and comeliness.

Modelling is preserved for us also when it is done in glass. In all the schools of decorative glass-work, as under the Roman empire and in later times in Venice, France, and Bohemia, though color in the material is the main thing, (see Chapter IX), moulded parts and even parts modelled by the tool are constantly in use. Under the Romans there was a peculiarly happy use of

¹ *Terra-Cotta*: hard ceramic ware, a term meaning baked earth and applied generally in Italian and always in English to specially prepared pieces of much hardness and excellence of make. Architectural terra-cotta was in use very largely in certain towns of Italy through the epoch of the earliest Renaissance; thus in Bologna and Ferrara beautiful decorative work, applied to doorways, balconies, arcades, and the like, dates from the fifteenth and sixteenth centuries. It was rarely used in the North of Europe. The application of the term to brilliantly colored and highly glazed wares, such as garden seats, vases, and the like, has no especial propriety; even the Italian work in colored enamels, as explained in what is said elsewhere about the Robbia work, is generally excluded from the category and is spoken of as enamelled ware rather than as terra-cotta.

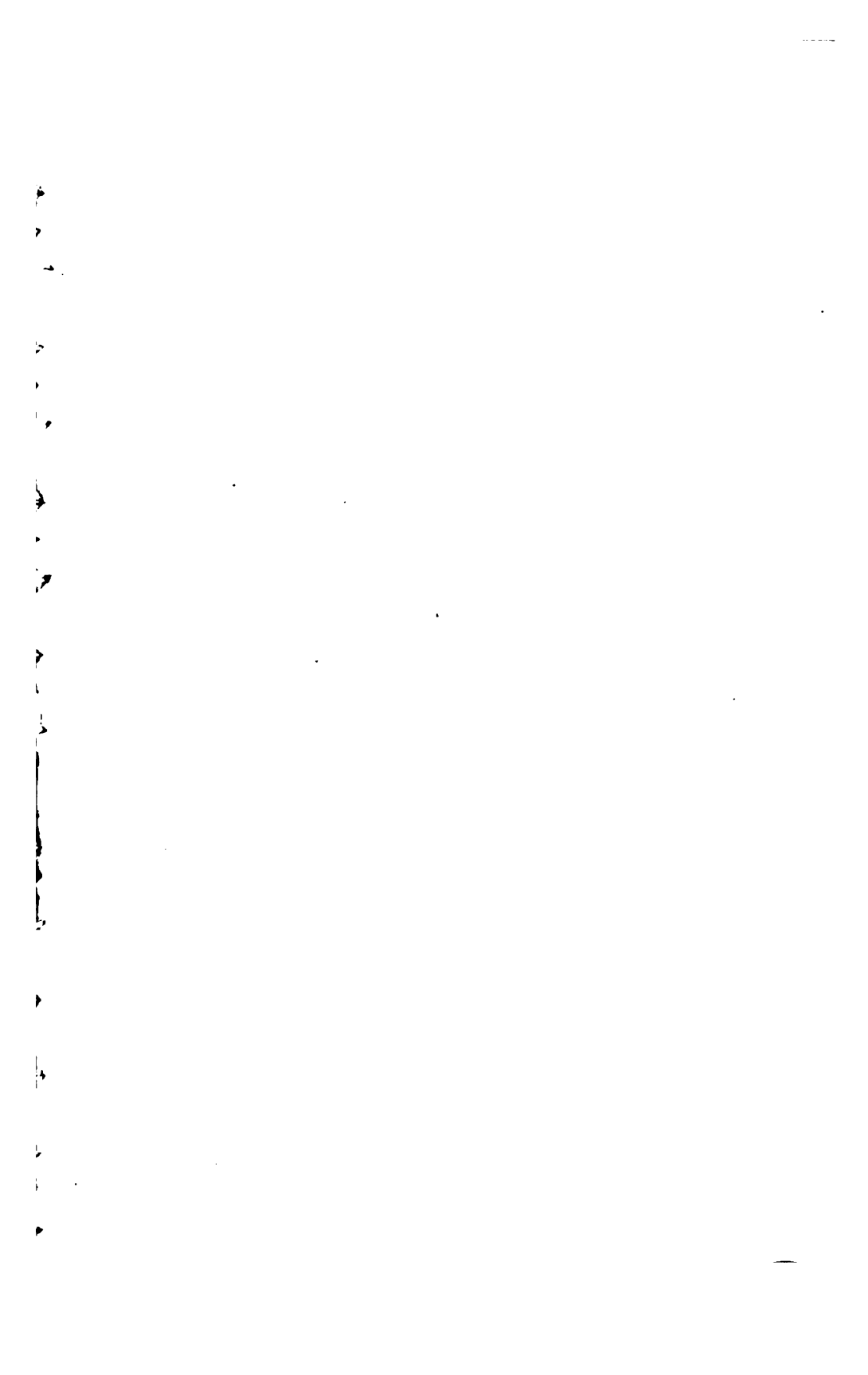




FIG. 21. Bust modelled in wax and colored. Lille, France ;
Musée Wicar



modelling in glass in connection with tiling, such as was made for the sheathing of walls. Not many fragments of it have come down to us, but those that have are sometimes of great beauty, the figures being exquisitely designed though coarsely modelled, as if rough copies of well-known beautiful originals.

Modelling which is not made hard and permanent by fire may still be preserved for a length of time if it is treated with respect. The remarkable wax head (see Fig. 21) in the Musée Wicar at Lille in France is of disputed origin, having been claimed for Greco-Roman antiquity and also for Raphael: it is evidently of the most glorious days of the Renaissance. It was rather common in the early years of the nineteenth century, in England as well as in France, to make statuettes and the like in wax completely colored in close resemblance to life, and this for public sale, — little figures representing the characters of Dickens, each under its own glass shade, having been for sale in 1840, and after. Many collections of minor works of art contain modelling as of heads, in wax and other soft materials and of many epochs, these modelled pieces being richly colored and gilded, the material itself being sometimes uncertain because no one wishes to cut into it sufficiently for examination.

Impressed or stamped work in many materials is properly a modification of modelled work; but

in these processes the engraving of the stamp or mould is so much the most important part of the work, artistically speaking, that the subject belongs rather to die-sinking. Still, as the dies have to



FIG. 22. Portrait medallion in pressed horn,
Frederic Henry, Prince of Orange, signed
by John Osborn, 1626
(“Some Minor Arts”)

be made especially with a view to the material to be impressed, designs in stamped horn, tortoise shell, leather (see Chapter XI), and wax are entitled to especial consideration in Oriental and in European art. Wax allows of almost complete coloring; the other materials are generally

used for the medallion, and by the Japanese for the netsuke.¹ Fig. 22 shows a medallion portrait, Eng-

¹ *Netsuke*: a very small object of smooth and rounded shape used by the Japanese to receive and hold one end of the silk cord to which is attached a pipe-case, tobacco-pouch, or inro. The weight of the larger object cannot drag the netsuke through the girdle, and a convenient means of grasping and handling the whole is thus afforded.

lish work of the seventeenth century, and the student will readily see how much the design loses in being transferred from the die or intaglio to the not perfectly ductile material upon which it has been impressed. This form of the sculptor's art is, therefore, best treated in connection with the cutting of the intaglio original (see Chapter XXI).

The term "modelling" may with propriety be extended to cover the treatment of hard material which is in sheets so thin that it can be impressed easily, cut easily, and still more easily bent or rolled. It is more common, however, to use the word "embossing" for all work in thin plates of metal. When the work is hammered up from within, it is usually necessary to work also upon the outer surface, that is to say, upon the front, and this is done with the chasing tool (see Chapter X). This, however, has to do merely with the finishing of the work; the first pattern in relief having been produced by good hard hammering from the wrong side. In doing such work as this it is evident that the artist must constantly watch the right side; and in fact, as is shown in Chapter X, it is in that way that embossing is commonly done, the plate of metal being held down with some firmness against the point of the hammer, which constantly comes back to it in rapid little blows. Of course the artist may be following more or less closely a model which he has made before, but in this case he as an embosser

is merely following his own preceding work as a modeller and goes through two technical processes instead of one. Fig. 23 shows an *étui* or case for scissors, bodkin, and the like, made of thin plates



FIG. 23. *Étui*, Repoussé work in gold, French, eighteenth century

of gold hammered into relief from the wrong side and then chased upon the right side. This piece is in high relief. Fig. 24 shows a patch-box in which the relief is very low, hardly greater than that upon a coin, but produced in the same manner as that shown in Fig. 23.

There is still another kind of embossing which should be mentioned for a moment. In the Middle Ages and at a later time it was not uncommon to

carve in hard wood in low relief, and then to force very thin metal plates, as of silver, down upon this carving, the chasing tool or some equivalent being used to force the pliable metal into the recesses of the pattern. This once done, the thin metal plate could be withdrawn from the wooden background, which, with a little repair, would serve for a second undertaking of the same kind. The thin metal would be filled from within

with pitch or plaster or with some other material easy to liquefy, and which would then solidify itself. The best of all such substances is probably sulphur, as that has the faculty of cooling without shrinking notably, the hard mass occupying very nearly the whole space previously occupied by the sulphur when melted.

The above described process depends upon carving in relief, and is therefore not embossing in a strict sense. In like manner the stamping of a



FIG. 24. Patch box, Repoussé work in gold, French, eighteenth century

raised or an incised pattern, by means of a die made of a material harder than the material to be impressed, is not strictly modelling. It is indifferent whether the die is of hardened steel and the impression to be made is in tolerably hard metal, or the die is of copper or bronze and the material horn or shell or wood, softened by heat, perhaps by immersion in boiling water. In either case the chief part of the art-process is in the preparation of the die.

Chapter Five

PAINTING¹

IF we were considering modern ways of artistic work, the work of the studio alone, the consideration of drawing would precede that of painting; for the use of the outline and of the general lay-out of light and shade by some simple and monochromatic process, like that which we call drawing, always precedes the application of color. It is different, however, now that we are considering the whole body of technical work with paint, for with this, in all ages alike, it is not true that drawing always or generally precedes painting. If, limiting our inquiry to artistic work, we consider the painting of the walls and sculptures of antiquity or of the Middle Ages, or if, in modern times, we consider the art in a larger sense than the making of colored

¹ *Painting* : the act of applying paint, which is usually finely ground coloring matter mixed with some liquid, and some oily or viscid medium, often called the vehicle. It is also the work so done, as in the phrase, "The painting seems solid and well done." By extension, the term includes gilding and the application of bronze powder and the like. Moreover in this chapter, and again in Chapter XXV, it is necessary to include in Painting the application of pigments as is done in pastel work and by means of Raffaëlli's "paint sticks" or solid oil color,

patterns or representative figure work, we shall find much painting done by men certainly unable to draw, in the ordinary sense of that word. In the first place, large plain surfaces of color are put on, as by house-painters working with distemper,¹ calcimine, or oil paint, with only such boundaries and limitations as the surface itself affords; as when the Pompeian of the first century A. D. painted the rectangular blocks or panels of his wall, or when, to take the simplest modern case, a painter is at work on your drawing-room ceiling. He puts one color on your panels and two or three different colors on the different mould-



FIG. 25. Stone Screen, Aldenham Church, Herts, England, painted in bright red, bright green, dark blue and white, with touches of gilding, about 1480

(Blackburne's "Sketches")

¹ *Distemper, Tempera, Calcimine*: see *Distemper, Calcimine*, below.

ings which make up the ridges or bars which separate the panels. Even if he goes so much farther in his work as to draw a line or two or three lines or narrow bands of color close to and parallel to the mouldings, he can hardly be said to use "drawing" in any strict sense, as he merely guides his inartistic hand by a straight-edge. Fig. 25 shows, in mechanical drawing, in elevation, a piece of English Gothic window tracery with the mouldings of the stone frame; and the diagonal striping in color of the beads, or rounded mouldings. The painting is in strong primary colors: but our only business here is to note that the painter has no need of more skill, apart from his power of laying a flat coat of paint, than merely so much as will enable him to make those stripes equal in width, red and yellowish white alternately. He has also to keep his blue within the limits of the moulding which is intended to receive that color; but this is a part of his trade-knowledge as a painter. Suppose that he goes a step farther and applies a pattern by means of the stencil plate¹ (see Chapter XX), he is still not likely to

¹ *Stencil Plate*: a piece of thin metal or of pasteboard, stout paper, or the like, through which is cut a pattern which when laid upon the surface to be decorated enables the workman to repeat that pattern over and over again by means of a dabbing brush without his having more knowledge or skill than enough to keep the repetitions of the pattern in a line and at proper distances from one another. By means of two or three different patterns, used in alternation, a stencilled background may be very elaborate, and there is nothing to prevent the pattern so put on the wall from being very much improved by free-hand painting. This

FLAT COLOR ON ARCHITECTURAL FORMS

use any knowledge of drawing at all. All he has to do is to rule a certain number of straight lines across his panel and lay off certain distances upon them. In doing this he is not more necessarily a draughtsman than the captain of a fishing-smack is an astronomer because he uses a sextant and knows how to refer to a printed table. Moreover, it is true that a great deal of effective decoration is obtainable in such ways, by means of simply applied painting without any more than mere workingman's skill, the knowledge of his trade, on the part of the painter.

We have but little knowledge of mediæval practice in the way of the painting of architecture, but from the few examples which remain, it is evident that a trade existed, with its trade secrets and traditions, acting within which a skilled workman would paint a sculptured doorway or porch or a stone altar according to a recognized system as interpreted for the occasion by the master workman. The mouldings would be picked out in two or three strong, pure colors, the canopies of the little niches in the same or in other colors as especially directed, and the more usual traditions would hold in the matter of painting the armor blue, the faces of a peculiar red, the draperies in this and in other colors with borders and spotty patterns, as described in Chapter XXIV.

superadded to the set and uniform stencil pattern may give it vivacity and charm in many different ways.

PAINTING

The same use of painting without drawing is seen in ceramic art where, as in some modern



FIG. 26. Indian or Persian vase with thick light blue glaze, eleventh or twelfth century, A. D.

(Marquand Collection, 1903)

terra cotta work, whole surfaces are covered with a gray, dull red, or pale blue tinge, fired with the piece itself; and also in the "single color" vases of Chinese porcelain so much admired by collectors. Fig. 26 is an Indo-Persian vase of a single

FLAT COLOR ON CERAMIC WARE

color, a grayish-green, which depends for its effect upon its relief patterns: but it will be readily understood that the colored glaze, or enamel, is thinner at the projecting edges, which therefore seem light in color, and much darker in the hollows. Here is a kind of color-gradation got by a uniform hue laid upon a changing surface. In the splashed pieces also (see Chapter VIII) the color is allowed to run down the rounded surface of the finished vase, as if its trickling had stopped only when the heat of the furnace came to check it; and is not restrained by a fixed outline determined in advance. This also requires no skill of the draughtsman, but only that skill of the practised potter which is in knowing just how thick to make the pigment and how long to let it stand before and during the exposure to heat; for painting of this kind is very largely affected by the heat of the furnace itself.

In all such work as we have been considering, the preparation of the color is the simple grinding of it into fine powder, and the mixing of it in a pot or upon a slab with such a vehicle as may be chosen. Throughout the later Middle Ages a sticky and glutinous material was used, as in distemper,¹ which we sometimes call tempera. The modern equivalent of this is calcimine, or

¹ *Distemper*: painting with a sticky medium, or vehicle, as white of egg or the juice of fruits, but always something soluble in water, or capable of being thinned out with water.

PAINTING

kalsomine,¹ that which we commonly use for our walls and ceilings when but slight expense is to be incurred. In the ancient work, however, this method of painting was carried into the most elaborate mural pictures. Figure subjects with figures even larger than life were painted in distemper, this being, indeed, the only method used for work upon hard, smooth, and comparatively non-absorbent surfaces. Examples of this are given in connection with Chapter XXV on artistic painting.

For painting upon plaster, however, fresco² was the common method employed in the fourteenth and following centuries, but the introduction of this method, as of the plastered walls to which it was applicable, is not known to date from a very early period. If the people of classical antiquity painted in what we now call fresco it is probable that the surfaces received an after finish of a different sort, as no existing work in Pompeii

¹ *Calcimine* : literally, painting done with chalk ; commonly a mixture of chalk colored with the pigment, glue, and water. Only one coat can be applied and it is ruined by dampness.

² *Fresco* : from the Italian word meaning damp or cool. A process of painting with very liquid water color upon damp plaster. Each day the plasterer prepares only as much of his ground as the painter can probably finish during the hours of the day ; the remainder is then cut off and the new plastering put up with a very visible line of demarcation. These scars or changes of surface are more or less disguised by painting in dry color, and the contradictory term fresco-secco, or dry fresco, was adopted to signify that kind of painting, which is in essence the same thing as calcimine painting.

or Rome seems quite to have had the same finish as the fresco of the sixteenth century ; although the Roman plastering was very superior to mediæval or modern work. As every kind of painting has its peculiar characteristic, so the aspect of fresco is nearly always pale, cool, and tending to high lights. It is far from being bad for the colorist ; for he, even if accustomed to the deeper glow of oil-painting, has merely to rearrange his system of color and abandon altogether sombre effects and strong contrasts ; losing nothing essential by doing so ; as is proved by the wonderful ceiling of Michelangelo in the Sistine Chapel of the Vatican, where coloring of a very marked excellence is combined with noble composition and the most masterly and strenuous drawing of the modern world. Still, however, the men whom we look upon as essentially colorists, — the great Venetians and Correggio ; and, for sombre and less brilliant effects, Rembrandt and Velasquez, — as well as such moderns as Eugène Delacroix and J. F. Millet, would hardly have been satisfied if they had been compelled to take to fresco for their only medium. In the opinion of many, fresco painting remains the one perfectly satisfactory method of adorning the interior surfaces of walls, and the flat or vaulted ceiling which accompanies them. It tends rather toward the use of life-size or colossal figures and hardly lends itself to the elaboration of patterns unless they are

very simple in character, — this being, however, rather a natural result of the swift and brilliant work, requisite where all must be done before the plaster dries, than a necessity resulting from the pigments used.

Oil painting¹ was introduced into Italy apparently from the Low Countries, and at a time nearly contemporaneous with the work of the earlier Venetians; Verazzano and others divide in ordinary tradition the honor of its introduction into Italy. Its invention is often ascribed to one of the two brothers Van Eyck, Jan and Hubert. In fact, it was not the painting in oil that was discovered then. There can be no doubt that oil had been often tried as a medium; the invention consisted in the discovery of a good drier² without which oil painting would remain sticky, and would gather dust and larger impurities, besides being in constant danger of injury from the slightest touches. Oil painting is discussed somewhat at length in Chapter XXV, where the processes of the modern studio are described. The introduction of canvas

¹ *Oil Painting*: Painting which is done with oil as a vehicle, the dry color being mixed with it; the peculiarity of the process is that an artificial drier must be used to facilitate the work, as oil alone dries with extreme slowness. See the next note and Chapter XXV.

² *Drier*: a material which when mixed with an oil enables a painting in oil to dry rapidly. The modern drier is almost always turpentine. This when used in great quantity is apt to injure the character of the work and cause it to crack before the lapse of many years, the surface then resembling a "crackled" piece of earthenware or porcelain.

QUALITIES OF OIL PAINTING

as the surface upon which the painter works is closely connected with the introduction of oil painting. It seems to have been remarked at once by the early workers in the new material that a piece of textile fabric of any kind, if strained tight, would need only to have its pores closed by a preliminary coat of some simple paint, to prepare it well for the most elaborate work; and that weight would be saved thus, and also transportation facilitated, for the canvas can be rolled with the painted side out and so carried to any distance. The *Punch* woodcut of the young lady who is terrified at her husband's extravagance in using a clean pocket-handkerchief for his picture illustrates well enough the haphazard methods which are often in use, but many painters seek to obtain an effect which is only possible with canvas of a peculiar texture. The handkerchief would hardly be strong enough for large work, but it would suffice for an oil painting eighteen inches long. There is this advantage, however, in oil painting, that the same medium very slightly modified does equally well for painting on prepared surfaces of paper board (millboard) and of wood (panel, as it is called when especially prepared), even when that wood is part of a dado, a door, or a piece of furniture, as upon canvas. This facility in working on different surfaces was of great utility during the reigns of Louis XIV, Louis XV, and Louis XVI, when the elaborate interiors of the

so-called rococo¹ style were in process of decoration. Thus, Boucher, or any one of his contemporaries and followers could paint on canvas the pictures to be inserted in the walls surrounded by the carved and gilded woodwork of the paneling, and on wood the equally elaborate paintings of the large cove between wall and ceiling; nor could any observer detect a difference in the tone of the work between the painting on the one and on the other surface.

In modern times, fresco being very nearly unknown to our modern workmen, and careless habits of building having made it extremely difficult to procure safe plastered walls upon which to paint, the artists employed upon mural work have devised a plan of painting upon canvas which is afterwards applied to the wall by some adhesive paste, — a process called *marouflage*. The paintings in the important Parisian interiors are usually executed in this way. The scheme is not, however, applicable to surfaces of double curvature, as the interior of cupolas, and the like, nor even without great difficulty to such coves as those of the eighteenth century.

¹ *Rococo*: that style which began toward the close of the seventeenth century in western Europe. Its characteristic manifestations are in decoration of interiors, where constructional forms are so modified as to adapt themselves to flowing scroll-work with shells and imitation of water-worn rocks. Figs. 23 and 24 are specimens of rococo design in a small object.

LACQUER WORK AND VARNISH WORK

There is also to be mentioned the extremely curious, and for decorative artists, suggestive work of the Oriental nations in what is called lacquer:¹ of this, much the finest was made in Japan during the sixteenth and seventeenth centuries, with perhaps an increase in skilled manipulation in the eighteenth century. Fig. 27 gives a gold lacquer box in which the patterns of leafage in the three divisions at the right are seen to be in decided relief, the viscous paint being allowed to model itself in this way, while the one division at the left has the change of color in the varnished surface without relief, the whole being polished down as smooth as a mirror. The extreme beauty of the surfaces, polished, or slightly roughened, and with ornamental and representative paintings and low reliefs in color and gold, caused the frequent use of large Eastern panels in French furniture of the eighteenth century; the celebrated Vernis

¹ *Lacquer*: properly a material made of lac, which is an insect deposit brought from the East Indies. The term includes, however, work which has been thought by the hasty observer to resemble that in actual lac. The lacquered work of northern India may indeed be worked in part with lac as its medium, though there seems uncertainty about this. The magnificent lacquer work of Japan is, however, of totally different material. Its basis, the viscous medium itself, is the sap of the urushi, a variety of the sumach tree, *rus vernicifera*. The color, the powdered gold, etc., is mixed with this material, and is applied by a peculiar brush with a dexterity only to be gained by long years of practice, and perhaps hardly to be gained except by one who inherits the knack. The extraordinary effects of translucency and the building up of reliefs in finely powdered gold, the insertion of scraps of gold leaf, silver leaf, mother-of-pearl, and the like, are all details of a very refined decorative industry.

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Martin¹ was an attempted imitation which, however, soon broke away and followed an evolution of its own. Even where such lacquer is not used, or an imitation of it, painting on a small scale



FIG. 27. Gold lacquer box, six inches across, Japan, seventeenth century, A. D.

applied to the wood, or to the paper or cloth, glued to the outside of a box or the like, may be sufficiently permanent to serve a decorative purpose. Thus, it was one of the interesting minor industries in England in the seventeenth and eighteenth

¹ *Vernis Martin*: an application of copal varnish introduced in France about the middle of the eighteenth century. Many different workmen in France, and elsewhere in Europe, produced beautiful furniture and utensils whose chief adornment was in the varnish-painting. The four brothers Martin became most celebrated, and the work especially identified with them is that in which a gilded ground gives relief to delicately painted figures.

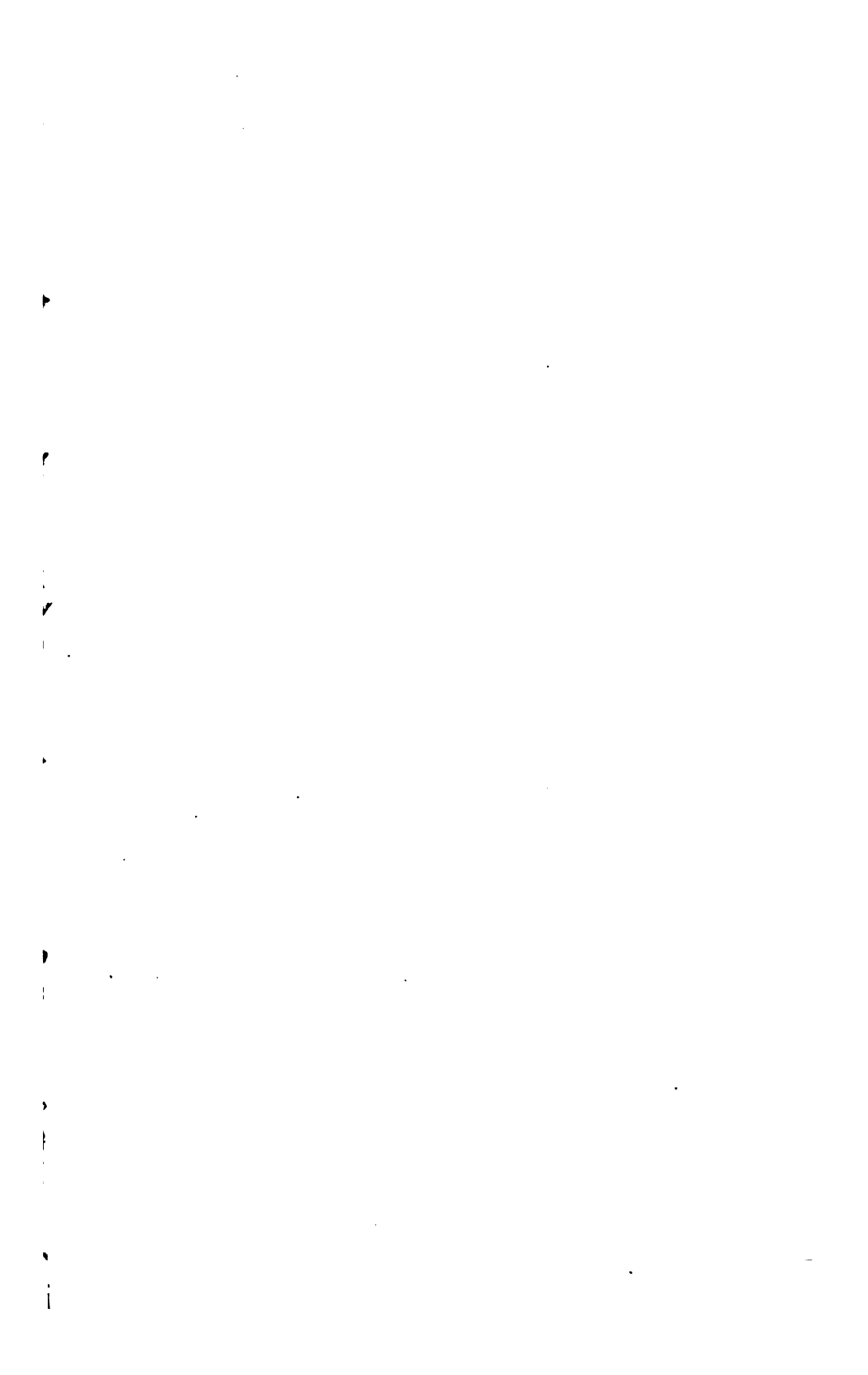




FIG. 28. Arms of the Visconti of Milan, painted on door of Cabinet
in Sacristy, Church of Santa Maria delle Grazie, Milan

(From Gruner's "Lo Scaffale")



centuries to paint little wooden plates and dishes intended to be used for fruit, this painting being altogether decorative in purpose, smooth, hard, and glossy, and bearing very considerable wear without serious injury. Table tops were painted in the same way; and it is notable that the elaborate inlay of which mention is made in Chapter XVII was often imitated in Italy with the paint-brush. The splendid presses and cabinets in the famous church at Milan, Santa Maria delle Grazie, which seem to be all in inlay of wood, are in reality painted in exact imitation of the inlaid patterns of the time (see Fig. 28). Painting on the pages of books, vellum, or paper, is usually in water-color with a sticky medium (see Chapter XXII) such as the gum in use by modern manufacturers of artists' pigments. Painting on the surface of pottery whether applied to the paste itself after a first or a second firing, or to the glaze, is always vitrifiable; that is, is capable of being changed by heat into a very permanent and hard application to the surface, or else fixed upon the absorbent surface of the vessel in a wholly inseparable way. In painting upon glass also a color is used which can be fixed by heat; but a distinction must be made between the opaque pigment described in the next paragraph and enamel colors (see Chapter IX). In such work the artist has to anticipate a great change in the hue of his pigments; thus a brilliant yellow comes, after firing, from a muddy brown paint of no beauty.

Some painting is used for concealing a surface in part and producing a figure or pattern of the original surface with a background made by the new application. A simple instance of this is in the illumination of manuscripts (see Chapters XXII and XXV); where a piece of leaf gold is glued to the page, and opaque color is worked upon the gold so that an initial letter will be left exposed, burnished gold upon a ground of color. The most striking instance of this painting-out is where a light of glass prepared for a decorative window is painted upon until all that is left translucent is the hand or head or part of costume which is desired to be of the color of the piece of glass; the painting having formed a completely opaque background for the translucent design.

Chapter Six

STAINING AND DYEING¹

THIS mechanical process is generally artistic in purpose, and must have been so at all epochs; but in many instances is non-artistic in the actual work. Threads, of which textile fabrics are to be made by the process of weaving (see Chapter XII), and the completed textile itself, may equally well be dyed; but the dyeing of the threads is generally the work of the mechanic, who learns, indeed, what dyes may be combined and in what proportions, and perhaps what dyes are brilliant or permanent, but who is little of an artist, confining his attention, even under the most favorable circumstances, to obtaining a more brilliant hue or a more permanent color than others may have done; and this in one skein of thread or of unspun fibre at a time, without thought of combinations of hue. Dyeing of the whole piece is obviously no

¹ *Staining — Dyeing* : the process of coloring any material by means of impregnating its whole substance for at least a certain depth below the surface with some liquid, which either changes the chemical nature of the solid substance, or else simply impregnates the whole, soaking in and leaving its color behind it as it dries.

further artistic than is the choosing of one single hue, —always excepting work by tying and the like, as shown below. Staining is of the same nature as dyeing, inasmuch as large pieces of wood, boards or shingles, are generally colored at one process, which gives them a flat tint, except as varied by the natural grain of the wood, one part taking the color more deeply than another part. In this sense, these kindred mechanical arts are mere preparations for a later manipulation which may have more artistic significance and a greater artistic result.

The workman who colors a large number of shingles with a green dye may have mixed or prepared the dye himself, but generally under other instruction. The workmen who dye the woollen threads in the factory of the Gobelins are acting under the direct instructions of chemists and with the direct assistance of those chemists. Even the dyers of silk thread in China, and of goat's-hair in northern Persia cannot be said to be pursuing a fine or decorative art, but rather to be preparing for the future work of decorative artists. In this connection, compare Chapter XXVII, where there is consideration of other non-manual arts of general production, and of combinations of different workmen and of their different work.

There are, however, special manual arts of adornment which depend upon staining and dyeing.

DECORATION OF HARD MATERIALS

Thus, the staining of ivory by the people of the extreme East is carried to great refinement, and upon it is based a very beautiful decorative art. Carved figures will be stained in certain parts; and with this partial changing of the color may be combined the inlay of other materials and the painting, upon the surface of the ivory, of flowers or conventional patterns in some form of what we call lacquer (see Chapters V and XXV). In certain cases the whole piece of ivory is stained after it is carved, and note is taken of those gradations of color which are caused by the varying compactness and the various grain of the ivory. Use is made of these accidental gradations in the color effect of the whole piece, including the addition of inlays or lacquer painting. It appears also that a previous application to parts of the surface of a chemical of some sort will modify the subsequent dye, and that this device also is employed by the Chinese and Japanese. Thus there will be carved out of a single piece of ivory a leaf, as of a water lily, with a frog upon it, and the staining of the whole results in giving a bluer green to the leaf and a more yellow green to the frog; these colors being also modified in the different parts of the leaf and of the creature by the more or less absorbent qualities of the ivory.

Large pieces of colored inlay are made, in which the staining of the different materials plays a great part. Thus a panel two feet high will be

composed, in the first place, of wood, the grain of which has been picked out in a curious way, so that the softer parts are removed and the harder and fibrous lines of the grain remain in relief. This whole piece of material is then stained with a subdued color, warm brown or slate gray; and then begins the application to it of the decorative design proposed. Parts will be simply painted with lacquer more or less raised from the surface. Parts again will be composed of stained ivory in several different colors or hues; other parts again in mother-of-pearl, pottery, and natural colored stones, — a very elaborate result being reached often; but the basis of it all being the stained wood and stained bone or ivory, used for much more than half of the surface. Some of these panels are of splendid decorative effect; and the artificially colored materials are at least as important in these designs as the unaltered horn, shell, ceramic ware, and mother-of-pearl. In the work of the Western nations it does not appear that staining is used very artistically; its limits being perhaps in the coloring of the exterior wood-work of modern country houses.

The staining of glass is of one nature only, so far as practical work is concerned. The Silver Stain, as it is called, gives a beautiful yellow. It is fixed to the glass by firing, but it differs from enamel (see Chapter IX) because it becomes completely incorporated in the glass, changing its

COLORING OF GLASS AND OF TEXTILES

color for a certain depth below the surface to which it is applied. The original coloring of glass intended for decorative windows is, however, of the nature of dyeing; that is to say, the vitreous substance is melted with color, producing what is known as pot metal (see Chapters IX and XVIII). In this, as in the coloring of thread or of textiles, the work, however delicate and however much in need of great and trained skill in the workman, is still not artistic in itself. It is the preparation of material for the artist rather than artistic work. Only in the application of the silver stain mentioned above does there appear the work of the draughtsman who lays a definite pigment within definite bounding lines.

In the art of dyeing textiles there are several very ingenious methods practised, the employment of which approaches the practice of decorative art. Thus the tying of thin and flexible stuff to exclude the dye from certain parts is extremely curious in its results. It is most often seen in the thin crinkled stuffs, such as crape, which are manufactured by means of strongly twisted threads (see Chapter XII). By gathering up small parts of the material and tying them on the wrong side, not only are there left round spots of the unaltered color of the fabric, but also long continuous lines; and even a pattern of intersecting lines is produced in the same way. It is true, however, that these processes are commonly the foundation or basis

of more elaborate designs in the artist's mind than the completion of the design itself. A piece of crape tied and then dyed of a greenish blue will be wrought into further elaboration by the printing on the surface of small passages of brilliant color by means of wood-blocks (see Chapter XXIII); and again the embroiderer's needle may be called in to complete the design with silk thread of many different colors or with gold, in thread or in flat strips.

Dyeing alone is the cause of the color effect in some of the finest woven fabrics, as in carpet weaving. The most magnificent Persian carpets (see Chapter XII) contain no gold thread, no embroidery, no visible material other than dyed fibres of hair or wool brought to a uniform surface of a character like coarse velvet; and as the effect is wholly one of harmony of color, so that color is obtained by dyeing alone.

On the whole, the mechanical processes treated in this chapter approach less closely to mechanical work used for artistic purposes than those treated in the other chapters of this Division.

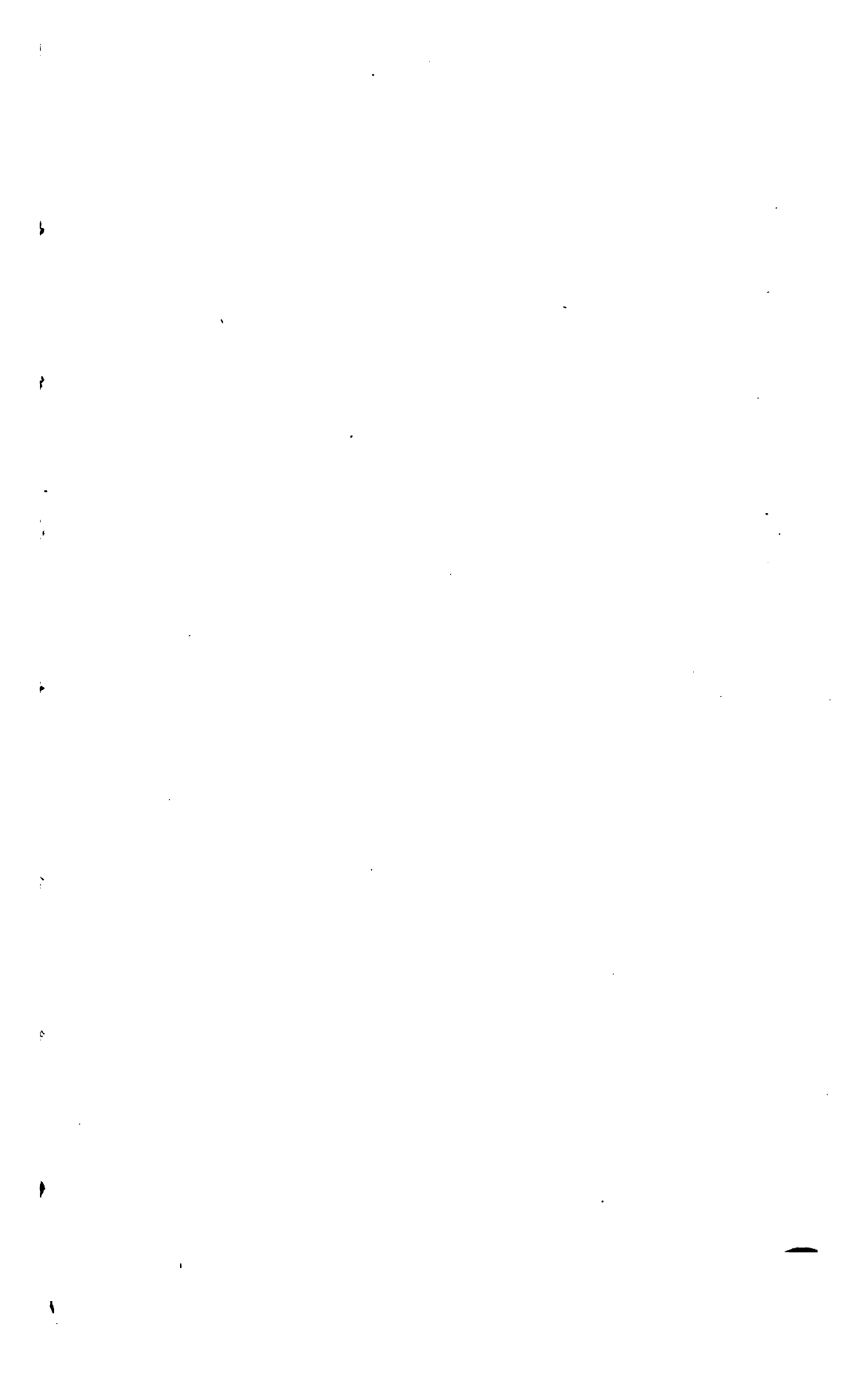




FIG. 29. Greek Vase (Hydria) 17 inches high, about 500 B. C. Thin black glaze, the large panel left in the red of the clay. The main subject is a procession of Bacchus, the lower band is of lions and other beasts, and on the neck is painted Herakles and divinities. The subjects were drawn by incised lines in the clay before the painting was done

(Marquand Collection)



Chapter Seven

DRAWING¹

DRAWING is used very largely as a first step in a piece of artistic work. Thus, the very commencement of a painting of representative character is usually a drawing made either with charcoal or with a brush and some pigment on the surface which is to be covered with color. So in the vase painting, Fig. 29, the black and the white pigment is not laid until the whole subject has been drawn on the clay by a sharp point, very lightly used, making little scratches which are not

¹ *Drawing*: the art of representing on a flat surface objects whether solid or flat, together with the rendering of ideas by simple lines, as in diagrams. Drawing, then, includes everything from a rapid setting-down of a memorandum concerning a piece of ground or the shape of a room by lines which are obviously not perfectly correct, to the elaborately finished chalk rendering of a human head, life-size or larger. The distinction between drawing and painting is that in the former no effect of color is sought. Even if the drawing is made in "sanguine," which is a peculiar red chalk, or with the brush dipped in any color however brilliant, effect of color has not been sought, but either mere outline or light and shade and consequent representation of form only. In one sense drawing is a rendering on the flat of sculpture, that is, it is a translation into terms of flat light and shade of the shades and lights seen upon a carved or modelled work of art or natural object in three dimensions.

intended to affect the result. Drawing is used also for a memorandum of things seen and things imagined; thus, Fig. 30 gives a drawing preserved in the Louvre Museum, a chalk head, ascribed to Titian. It is evident that no one can ever know whether this head was drawn from life with somewhat close following of the original, or whether it was drawn absolutely without the living model, from memory and imagination. It is possible, too, that a head very unlike this was actually before the artist's eye as he made his drawing; the living head serving well enough to guide the practised hand and to recall the essential truths of nature to the trained eye, while imagination also did its work.

Drawing, then, is most usually in one color, and the work is most often done by one material and one process. Still, it is not to be supposed that drawing is a less complex, less remote or recondite art than painting; the reverse is true in every branch of art and industry except expressional and descriptive painting, as shown in Chapter XXV. Painting which consists essentially in putting color on surfaces, with the view generally of making them attractive, may be, as shown in Chapters V, XX, and XXV, entirely independent of drawing; and moreover it is a more obvious and straightforward thing to apply paint to a previously sculptured wall or even to parts of an architectural composition, or again to a surface of



FIG. 30. Drawing in black and white chalk on gray paper,
attributed to Titian. Louvre Museum



wood or plaster with no more limitations than a line ruled along the edge of a board, than it is to take charcoal, or black, white, or red chalk, or even a hard point, and draw therewith in lines upon a bare surface.

It is evident that our definition of drawing must be taken as including work with lines impressed or sunk into the surface, provided that these are so slight that they do not tell forcibly as creators of light and shade. An instance of this practice is given in Fig. 29: a Grecian vase of hard-baked clay, in which material the forms have been indicated by scratching with a sharp point, as a guide to the hand of the painter. So, if a carpenter draws with the point of his awl on a surface of board, the instinct of the practised artist would be to call this process simply drawing by means of impression; it is called scribing in the workshops. It is not incision, nor engraving, as that involves the cutting away of the material (see Chapter XIX). In like manner the preparation for a fresco involves the drawing of a large cartoon, as well as marking on the damp plaster by a hard point of some kind (see Chapters V and XXV). In examining ancient frescoes, and in like manner the paintings on the walls of Pompeii or newly discovered dwellings in Rome, outlines are found slightly depressed below the general surface, this indicating a common practice of fixing permanently the lines, and in such way

that they can be easily seen by the artist while at work, but would hardly be noticed by the spectator at a few feet of distance. This, of course, is drawing as absolutely as if the lines were made by crumbling charcoal which can be brushed away, or by lead pencil or chalk which really stains the surface, leaving a mark which cannot so easily be removed.

Engraving has been mentioned above as liable to be confounded with drawing by means of the hard point; it is, however, closely connected with drawing and had better be considered here with reference to those paragraphs in Chapter III on carving where intaglio work is considered. Engraving (see Chapter XIX) lies half way between sculpture and drawing. When a silver plate is to be marked with a simple pattern or with the letters of an inscription, that is drawing done by means of lines cut by sharp tools which remove little shavings of the silver. Even in the exquisite Japanese engraving on silver and bronze, where the incised line is sometimes wider, sometimes narrower, and is like the line drawn freely by the artist with chalk or paint-brush, it is still the line which is considered. As the draughtsman's bounding line is broader and narrower by turns, when he draws with pencil, chalk, pen, or brush, so the engraver, working with a perfect knowledge of his art and of his tools, varies the width and depth of his incision to produce the desired effect; but

LINES BURNT OR CUT INTO SURFACE

the work of the artist is still the line, and not a rounded or modulated surface (see Chapter XIX).

Still another artistic process holds a place half way between drawing and relief-sculpture : namely, "poker-painting" or drawing with a red-hot iron on a surface, usually of wood, which is partly burned away, and the new surface much scorched and discolored. A simple arrangement of lines, nearly of one width, as made by one movement of the hot point, may be classed as drawing without hesitation ; but a special instrument is in use, the iron point of which is kept at a very high temperature by an electrical current, and with this, large parts of the wood are burned away, while the newly exposed surfaces receive variously sloped or rounded forms. The poker picture done in this way may come very near to concavo-convex sculpture, tinted in various grays.

Engraving of all kinds appears, then, on examination to be essentially drawing. Even the etcher (see Chapter XIX) using a steel point to scratch through a surface of varnish, and the worker with the "dry point" who uses the same or a similar "needle" to scratch the bare plate of copper, are busied with drawing, and nothing else. The peculiarity of their work is that what they draw is not the final work of art, but a preparation for it. They make a drawing *reversed*, as you see yourself in a mirror. All engraving that is done for the future printing off, as on paper or the like,

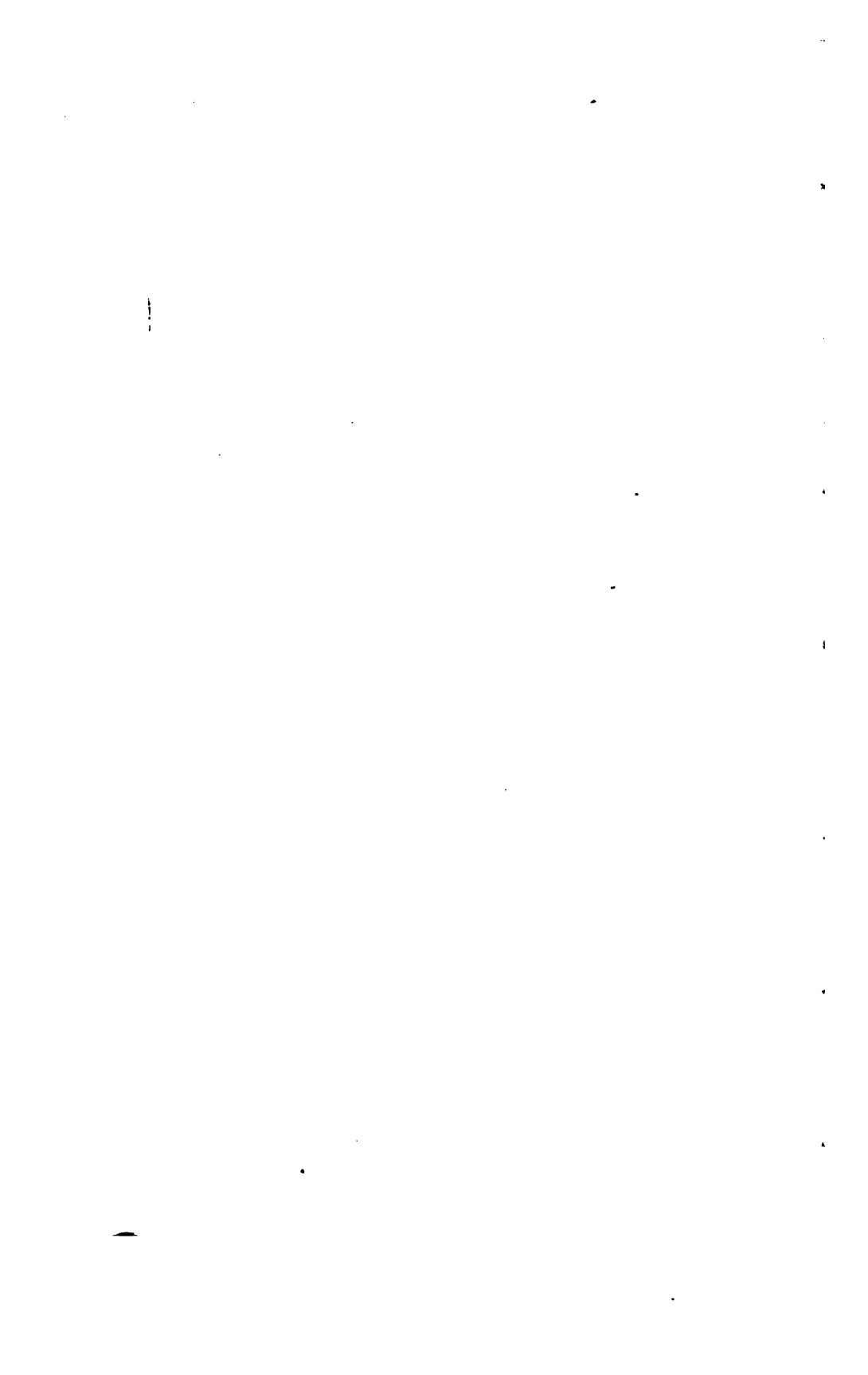
is done in that way. Indeed the mirror is used by some etchers to reflect the natural scenes or objects which they study; they draw, then, directly and without effort from the already reversed image; and this they do whether they are making a pencil study to be afterward reproduced on the copper, or, as some enthusiasts use it, work direct with needle on the etching-ground, without preparatory study.

Drawing done for the purpose of reproduction in many copies has its chief type in lithography. In that surprising process, a drawing, made the reverse way, indeed, but not scribed or burned or scratched, or incised in any way, may be printed off in ink an indefinite number of times. This process affords the best possible means for book-illustration, popular record of events, caricature, and appeal to the many in the language which is not of words. Fig. 31 is one of those lithographic prints in which, soon after the invention of the art, the French conquest of Algeria was commemorated. This is one of the finest battle-pieces in existence; and its complete excellence goes far to show that for one large class of graphic art, variety of hue as well as artistic gradation of color is extraneous, and may even be undesirable. The oil painting, costing its owner twenty thousand dollars, will very rarely give the same descriptive and associative impression to the beholder, that this two-franc print can produce, even in far-away lands and times.



FIG. 31. "Le Combat d'Oued-Alleg," 31 December, 1839
From the Lithograph by D. A. M. Raffett, 1804-1860





We have still to consider drawing done for its own sake, whether the artist is seeking merely his own improvement and additional knowledge or whether the drawing is intended for sale. Thus some modern portrait painters produce more chalk drawings than they do oil paintings, the charge for such a crayon¹ head being perhaps half or even two-thirds as great as that for a painting. Some chalk heads are worked in two colors, black and red; the famous Englishman, Dante Gabriel Rossetti, produced many such heads intended in the first place as studies, but now much sought for by lovers of art. Such drawings, made with the hard point, are often elaborated by means of the stump, which gives gradations of singular softness and refinement. Drawings may be made wholly with crayon-powder (see *Sauce*, in the definition of Crayon) and the stump.² Ancient drawings, especially those made by the great masters of the Renaissance and later years, are preserved with the

¹ *Crayon*: a material used for drawing. As distinguished from a lead pencil it is a piece of hard chalk or indurated clay, specially prepared, and may be of any color. *Crayons Conté* are French pencils of this kind, square bars, about a quarter of an inch in section and four inches long. They need to be held in a *porte-crayon* or other holder. The term is extended, as in France, to cover the crayon powder (called *Sauce* in the French studios).

² *Stump*: a soft, rounded and tapering implement, by which the draughtsman in chalk or charcoal or crayon of any sort may rub his hard lines, and so graduate and modify them. It may be a specially prepared roll of soft leather, or an extemporized cone of paper or other material.

DRAWING

greatest care, and great collections of them exist in Vienna (the Albertina collection), in the Louvre, at Lille in the Musée Wicar, in the Uffizi at Florence, and similar ones in many museums and in private hands. Some of these drawings are carried to the pitch of artistic perfection which leaves nothing to be desired or sought for. There are other heads, studies of the whole figure or of drapery, and memoranda of composition and grouping, made in black or black and white chalk, by Titian, Raphael, or Leonardo — or ascribed to him — which are of a beauty perhaps unequalled in the painted work we have of the master. Of men of the second rank, though still great, Watteau is famous for his admirable drawings of character, the heads of the men and women of his time, and even of the young negro pages who waited on the great ladies whom he was continually painting.

In all kinds of drawing, whether done at first hand or done on metal with a view to reproduction by means of prints, the distinction must always be preserved between those drawings which are deliberately artistic and those which are made as memoranda alone. Thus, nothing is more puzzling than some of the drawings made by this or that eminent illustrator of books, or maker of designs for similar minute work. The first embodiment of his conception by George Cruikshank or Daumier or John Leech is sometimes a

SKETCHES AND FINISHED WORK

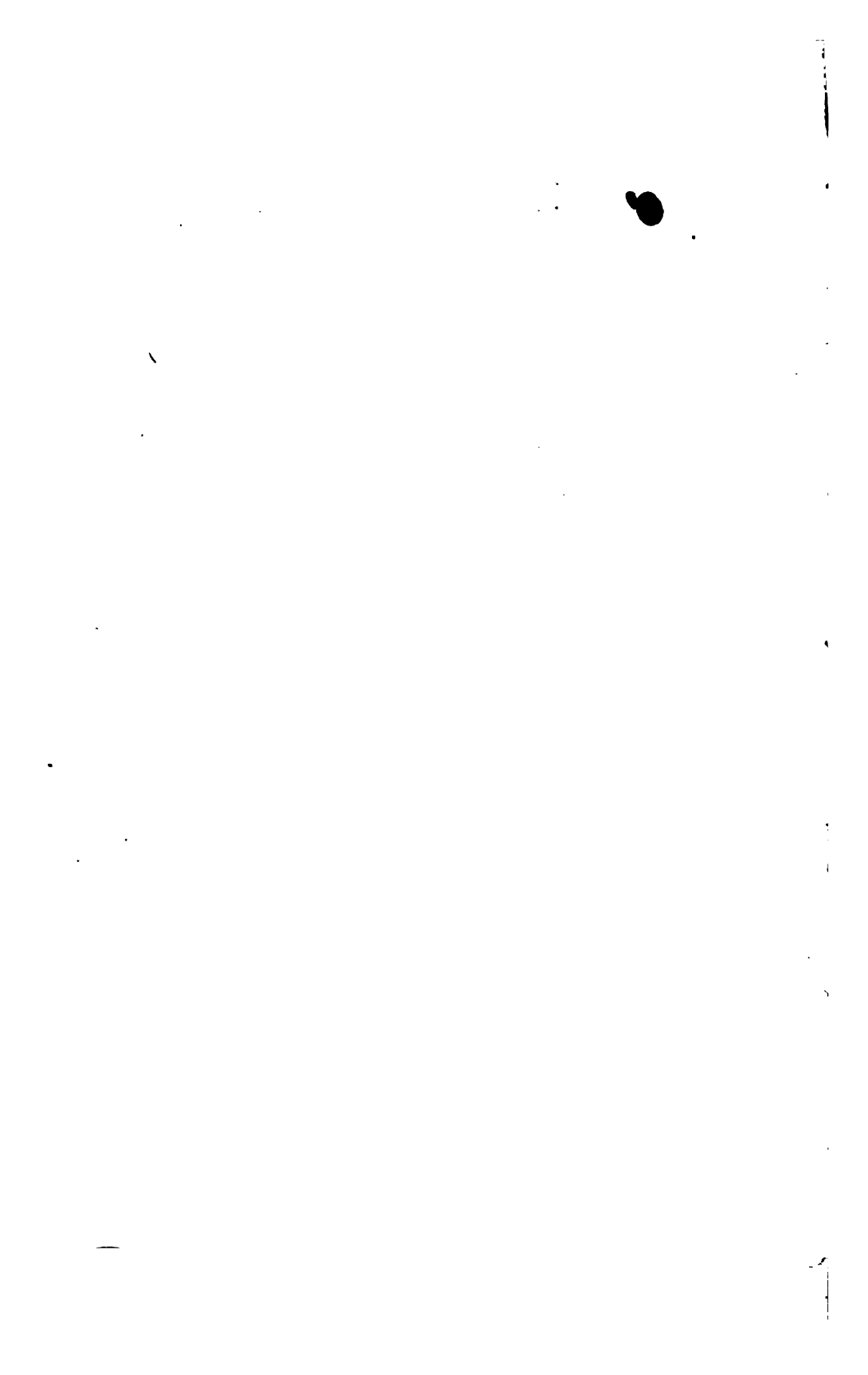
scrawl with corrections and changes of plan visible in every part, and with but little charm even to the most practised student of the artist's handiwork. On the other hand, the finished work of such a man will have a very high artistic charm even where the process used is extremely simple. To mention George Cruikshank alone ; a plate taken almost at random from his finer etched work will yield you a print of great beauty, although the work done has been almost wholly in outline. Some of those which illustrate *Oliver Twist* are as simple in their way of work as can be imagined, and yet the highly conventionalized treatment of the whole composition, the figure disengaged in dark solidity upon a very pale landscape upon which every touch is a mere descriptive outline, is as remote and elaborate a piece of artistic work as could be found even in delicate painting. The fact that these drawings were made with a hard point on a surface of hardened varnish (see the definition of Etching, Chapter XIX) does not distinguish it in any essential way from drawing in the general sense. So the winter landscapes which surround and support the hunting-field incidents of John Leech in "Punch" of old time, are wonderful designs ; and here the drawing has been strong enough to impress itself upon the wood-engraver. The whole vast field of recent drawing for photographic reproduction demands consideration here, for, indeed the conditions have

DRAWING

changed ; but this matter must be left open for a few years yet. A new set of maxims will form themselves — new aspirations will be entertained and old ones given up, with regret, — before we can judge aright of modern book-illustration.

PART III

THE SEVERAL FINE ARTS OF HAND-WORK



BOOK III

Chapter Eight

CERAMIC ART ¹

WORK in baked clay is one of the first industries to which primitive man set himself. The almost perfect durability of pottery has given to modern students a greater knowledge of the work of early races in this material than in others, and the remains of earthenware are among our most important historical monuments. On this account ceramic art has always been studied by chemists, on the one hand, and by archæologists on the other hand, as one of the most worthy subjects upon which to exercise patience and historical insight. Moreover, as modelling in clay has always attracted artistically minded workmen (see Chapters IV and XV), so students of art find much satisfaction in the record of many centuries, as preserved in ceramic monuments.

The character of pottery depends largely upon the kind of clay which is at hand. In early ages

¹ *Ceramic Art*: the art of making vessels and other objects of clay, or of some substance or compound replacing clay, and then baking or "firing" the pieces at a high temperature, see note, page 67.

and during all periods when the system of transportation was not very highly developed, the clay of the nearest hillside was that which had to be used, and even in modern times industries anciently established in this localized way have been retained, though with a certain modification of the material. Thus at Apt, in Provence, a large factory of earthenware exists where it has existed for many centuries, but the material now used is somewhat different from the native clay used in pre-Roman times and in later centuries, because modern chemistry has suggested improvements or devices which at least save expense. This factory has produced, since about 1860, great quantities of hard and fine ware, seemly enough in general appearance but not very decorative: fine *terrines*, but nothing artistic. In the eighteenth century much more decorative pieces were made at Apt. In like manner it has helped the recent discoveries of the true origin of that strange ware once known as *Faïence Henri Deux*, that the village of Saint Porchaire in Poitou retains its beds of fine white pipe-clay and its workshops, though now given over to the making of common utensils.

The ordinary red flower-pot of our greenhouses is very like the commoner earthenware of the earliest races whose work, found along the shores of the Mediterranean, betrays no special artistic sense. In every great collection of Greek pottery,

GRACEFUL FORM IN RUDE POTTERY

even of the central time, there are cups and vases of many forms and of all sizes which are in material and in skill of fabrication not superior to the flower-pot. They have, however, an immense superiority in variety and beauty of form over any modern work; this arising from the existence among the people of a taste more general and more refined in such matters than has existed at any time during the nineteenth century in any Europeanized land. Indeed the disappearance in modern times of a general power of graceful design in simple as well as in more elaborate objects is to be traced very readily in pottery, where only a few simply useful forms, like that of the flower-pot, retain their old charm. The easy comparison between earthenware of many lands and many epochs affords another motive for the close study which this art should receive, and for that which it has received.

Pottery, made by the simple moulding of the clay, shaped by hand and then baked, is not often water-tight; moreover, it is usually very brittle. Thus in Fig. 32, the piece, although it has been painted with figures, very elaborate for the epoch, is still a piece of common pottery, holding water imperfectly. Indeed the painting on the surface would be injured by the liquid soaking through the clay; so that such a piece has only a temporary or limited utility. To remedy these evils even in very early times the

CERAMIC ART

experiment was tried of increasing the heat of the fire, and, for this purpose, of building a furnace of some sort, a kiln, in which the heat could be retained. It was found, however, that the great heat of the kiln produced another result as well as that of making



FIG. 32. Greek Pot : Asiatic taste

the baked clay harder, less brittle, and more compact, — it partly fused the sand which formed the surface, so that in this way a kind of vitrified glaze overspread the surface. It was also found easy to produce a glaze by applying another material in a thin coat, which glaze was completely water-tight except for the flaws natural to rough work. The way was found, and nothing but

THE INTRODUCTION OF THE GLAZE

more careful workmanship was needed to make the vessels hold water, and, as the heat of an out-of-door fire was nothing as compared to that of the kiln which the vessel had passed through, to allow of the boiling of that water by the direct application of heat to the outside of the vessel.



FIG. 33. Greek Kylix. Black ground. Best Period

This step in the development may be marked by the Greek bowl shown in Fig. 33. The black glaze which is important to the decoration gives also a perfect resistance to liquid. We have, therefore, the more barbaric decoration of the sixth century B. C. and earlier times accompanying an imperfect glaze, as in the pot, Fig 32 ; and we have the drawing of the human figure, as in slight

studies from almost perfect contemporaneous paintings in the kylix, Fig. 33, which is of about 420 B. C. The earlier decoration is more brilliant, more effective: it is a better covering pattern. As in their architecture so in this flat and monochromatic painting, the Greeks withdrew from all decorative appliances other than exquisitely delicate form and refined suggestion of human object.

A further step in the development of the ware was accompanied by a resort to more brilliant methods of decoration. The addition of much thicker glazes than this, deliberately applied, and for that purpose made of materials somewhat different from the body of the ware, has always been a later device. It is somewhat the rule to speak of these glazes as enamels (see Chapter IX), at least under certain conditions, as for instance when they are opaque and afford a solid surface on which to paint. Fig. 34 shows three plates from the island of Rhodes and from western Asia, in which pieces the body is a coarse, porous, and soft earthenware, dark brown in color; but this body is concealed by a white glaze (enamel), upon which the painting is done in vitrifiable pigments. When the glaze is translucent it is not often called enamel. The term is applied also to painting put upon this glaze. Thus an elaborately adorned vase is composed of its body and glaze; but the color-decoration applied to it, the painting, is partly "under the glaze" and shows through

PAINTING ON OPAQUE GLAZE

it, that is, it has been painted upon the paste forming the body before the glaze was added, and partly over the glaze, that is, painted upon it before the last firing. These over-glaze paintings are often called enamel painting. It is evident



FIG. 34. Persian plates

(Marquand Collection)

that such pieces cannot be finished by means of a single firing; the vase as modelled at first may be fired at a low temperature to keep its shape perfect, and then a second time with the under-glaze painting; a third time with the glaze, a fourth time with the over-glaze painting, and a fifth time with the gilding; though this is not a universal rule. Fig. 35 shows a bottle of Chinese porcelain in which the above-named process has

been followed. The whole design, horizontal bands of fret-work and scroll-work, flower pattern and birds, has all been drawn upon the paste before firing, and the pigment used for this out-



FIG. 35. Chinese bottle, silver mounted

line drawing is one that is deep blue when fired. The glaze being spread and the whole fired together (for it is in this way that true porcelain is made), the painting is then begun afresh, in a green which is nearly transparent, a red which is less translucent, and other hues, as orange and pink, which are entirely opaque. There are many elaborately decorated potteries in modern times in which the ceramic

painting is put upon the as yet unfired surface of the moulded piece as it stands ready for its first insertion into the kiln. This, of course, is a difficult and awkward process, the surface not lending itself at all nicely to the laying on of the color, and the color itself, in this as in other ceramic

PAINTING UNDER AND UPON THE GLAZE

processes, looking in its crude state very unlike what it will be after firing. Still, such painting has been carried very far by the French workmen, such as those at Gien, and more recently in



FIG. 36. Faience plate painted by A. Sandier

the national porcelain factory at Sèvres, where much ware other than porcelain is now made. Fig. 36 shows a piece of Faïence prepared in this way. The conventionalized landscape and figure, expressive of the sufferings of the French army during the winter of 1870-1871, is painted in brownish purple (manganese) upon the unbaked body; the glaze is then applied and the whole

fired together. The admirable artist who painted this landscape in 1871 held the conviction that the only course open to European workmen, seeking ready means of adornment, was to utilize expressional and representative art for that purpose. He with others felt the absence from the European spirit of the decorative sense still held by Orientals and believed that only the artist who had a subject to paint could rightly adorn a piece of pottery.

Such pieces as this may be fired once only, or, if fired twice, this will be rather because of a desired refinement in the color, one pigment taking a much longer time for its proper baking than another, and being therefore put on separately. It will readily be seen that the practice of every factory managed by skilful workmen may have peculiarities of its own, and that some of the processes so used may even be kept secret. Still, the general practice is nearly the same, the differences being as above pointed out.

There is, however, a modification possible to nearly all kinds of pottery, which turns them into something very different, namely, stoneware.¹

¹ *Stoneware*: ceramic ware in which the paste is so permeated and combined with vitreous glaze that the whole body of the piece is water-tight. Such pieces are usually gray or pale yellowish-brown. Stoneware can be told from pottery in this simple way: if you put the tongue to a freshly broken surface the tongue will adhere to the pottery because of the rapid absorption of the moisture by the capillary attraction of its porous substance, but it will not adhere at all to stoneware, showing

DECORATION OF STONEWARE

This stoneware is used for beer mugs and vinegar jugs, and in this way is familiar, but it is used also for a very simple and yet refined kind of decorative ware called sometimes by the erroneous name *grès de Flandres*, and more properly Cologne ware or Rhenish stoneware. In the more elaborate pieces of this interesting variety of ceramic ware the surfaces are frequently impressed with patterns from metal or from wood stamps, and are often touched with color, especially a deep blue, which is effective on the rather pale gray ground. The heads with long beards often seen impressed upon the neck of a large jug on the side opposite the handle, have given rise to the name Bellarmine as applied to such jugs; this being in allusion to the supposed caricaturing of that powerful sixteenth-century champion of Roman Catholicism as against the Protestant communities of North Germany and the Netherlands.

Another variety of ceramic ware is that which is named above as porcelain,¹ and this is different

that there is little porosity and therefore no sensible absorption of the moisture. The glaze of stoneware is commonly produced by throwing salt into the kiln, making a chemical combination with the silica in the ware and producing a transparent and extremely thin coating of glass, which is yet inseparable from the body of the ware.

¹ *Porcelain*: a translucent ceramic ware with a specially transparent glaze. The materials, which have not been replaced or imitated successfully, are the substance called by the Chinese, kaolin, a product of decomposing feldspathic rock, and for the glaze, what the Chinese call petun-tse; also a feldspathic rock. The curious ware called soft porcelain is described in the text.

in its very inception from all other kinds, in that the raw material is a clay only by a great extension of that term. But the processes of modelling and of baking it are similar to the processes of ordinary work in baked clay. Porcelain is sometimes turned out without a glaze and is then called *biscuit*; ¹ a term applied especially to the figures and groups of smooth but not glossy white ware as seen in Fig. 19. The great majority of pieces are, however, finished with the peculiar glaze, and of these the greatest number are painted in blue under the glaze, or in other colors over the glaze, or both, as described in connection with Fig. 35. Ware of this kind was imported from China and from Japan into Europe throughout the seventeenth and eighteenth centuries, and was greatly admired and cared for by collectors of such things. Some splendid pieces which are known to have been imported as early as the reign of William III. of England (1688-1702) are still in European museums, and in the Louvre are vases painted in China expressly for the Regent of France (1715-1721) with his arms upon them. It was therefore the object of every government-supported ceramic establishment in Europe to discover the secret, the material and the process of making porcelain.

¹ *Biscuit*: Porcelain or fine pottery which has been fired and has its shape and surface perfectly determined, but has received no glaze. Such a piece may be prepared for glazing or it may be deliberately left for the artistic effect of form alone.

SOFT PORCELAIN AND TRUE PORCELAIN

It was found impracticable to get the information in China, and this largely because of the complete absence of intimate intercourse between the Europeans there, whether missionaries or traders, and the people themselves; accordingly the chemists of Europe tried endless experiments, with the result that the most extraordinary mixtures of different ingredients were made into paste; from the moulding and firing of one of which pastes there came what we call now soft porcelain (*porcelaine tendre* or *à pâte tendre*), which ware, whether made in Germany or more especially in Sèvres, is of great value to-day on account of its rarity, and also because of the less resistant surface and the singular charm of the painting when applied to it.

No approach was made to hard or true porcelain until the actual material was brought from China. Then the same or an equivalent material was found in several parts of Europe, and it is known to exist in the United States as well. Since that time porcelain has been made in many places, but the distinction between Oriental and European porcelain is very obvious in the color, in the look of the fracture as well as in the modelling and painting of the pieces. The Sèvres National Factory has recently, under a new management, established in a definite way two kinds of hard porcelain, one a close imitation of the Chinese product with a painting studied

from the Chinese, and therefore of the same general character in the way of design, at least in so far as the combination of colors goes; the other still harder than the Chinese, and having of necessity a different system of coloration. Both these wares are to be admitted hereafter into our text-books as entirely differentiated, to be kept as far apart in the mind as Chinese porcelain is from soft porcelain, which last has been truly called rather a glass than a ceramic ware.

The artistic treatment of all kinds of pottery may be reduced to the following schedule:

(1) Coarse pottery, without glaze or painting, is dependent upon its shape and on slight scoring or relief upon the surface for any decorative effect that it may have. The forms are clumsy among the African tribes; grotesque and 'ugly,' though interesting from their novelty, in ancient Peru and Mexico; frequently, though not always, of extraordinary refinement among the Greeks of the fifth and fourth centuries B. C., and thereafter for many years in all the Mediterranean region; treated carelessly since the fall of classical civilization; and usually utilitarian in the modern world except that in some few parts of Europe and Europeanized America a traditional grace of form is retained in rural districts. A peculiar respect among Orientals for the swiftly and simply modelled piece, without adornment, has been noted by Europeans, and some attempts have been made

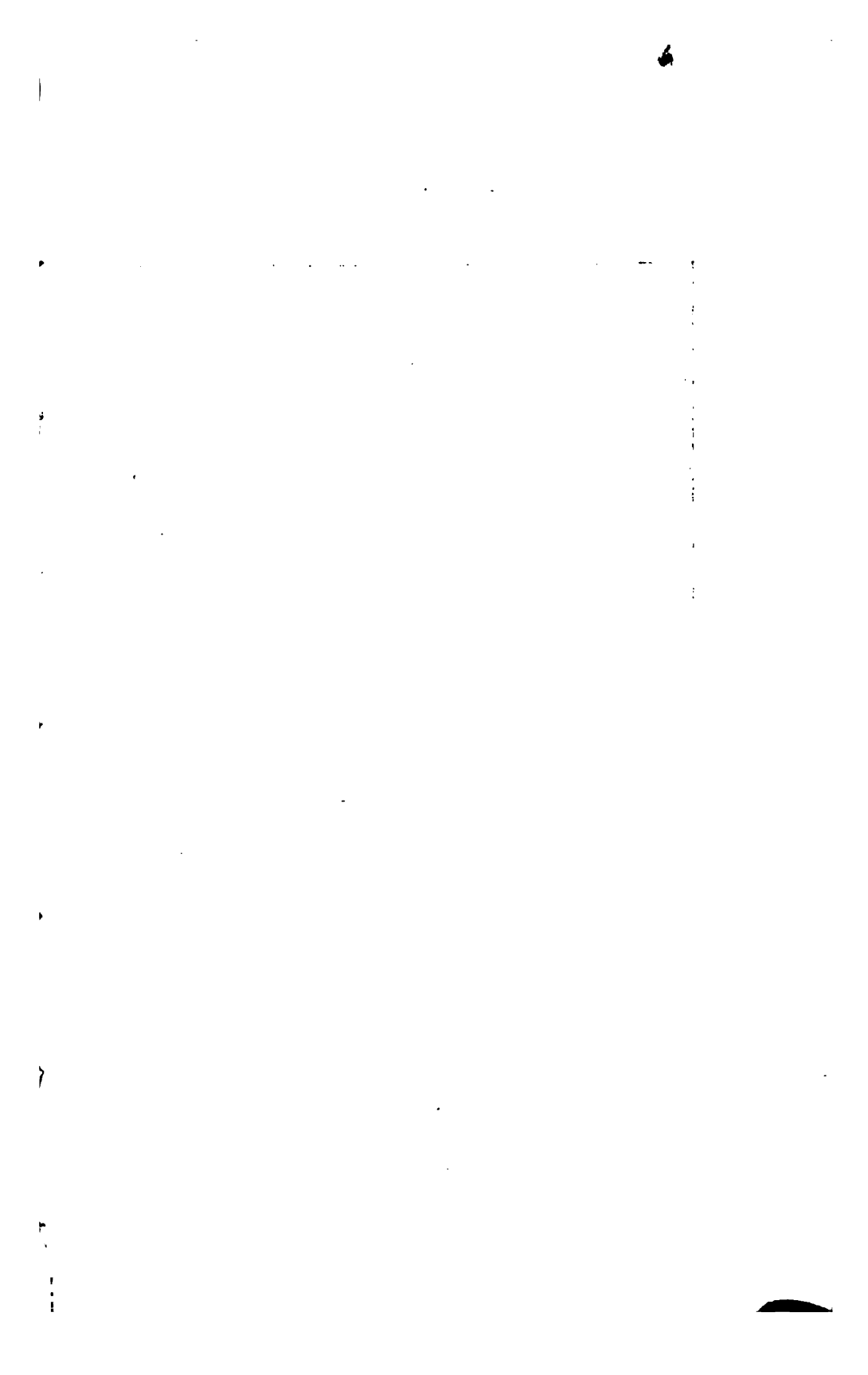




FIG. 37. Greek vase (Amphora) 17 inches high, about 600 B. C.

The reddish yellow clay forms the background, the bands are black and red, and the figures of beasts and fabulous creatures are in black, purple, and dark red

On the left, Rhyton, $8\frac{1}{2}$ inches long, covered with thin black glaze, painting in purple and white

On the right, Rhyton, 7 inches long, decoration similar to the above

The two Rhytons are of the fourth century B. C.

(Marquand Collection)



DECORATION OF DIFFERENT CERAMIC WARES

by them in the same direction; but in most cases some glaze, or painted characters of some sort, are added.

(2) Pottery colored on the surface in patterns, usually with black and red alone and usually in very simple lines, waves, spots, and the like. This decoration was much used among the outlying provinces of the Greek world, as in the Mediterranean islands, the pieces having a fairly agreeable form which is helped by the simple painted patterns; such decoration carried farther and including rudely drawn forms of lion and harpy is shown in Fig. 32; a similar decoration carried farther is seen in the central vase of Fig. 37. The same ware, when invested with a thin black glaze whose origin is unknown, gives us the famous Greek painted vases — red figures left while a black ground is worked around them as seen in Fig. 33; black figures painted on a red ground, as seen in Chapter VII, Fig. 29; and very rarely other colors introduced, as in the piece reproduced in Fig. 32 of the present chapter. The outlines of the figures are often found scribed in the clay, as mentioned in Chapter VII; but it is evident that, frequently, this has been done after the painting, as if to give a little emphasis. The system of design in such ancient pieces is, then, first a very tasteful modelling of the body, handles, spout, etc., and this carried out with very careful workmanship, all surfaces truly rounded and

smooth ; second, a drawing on the surface, apparently swift and easy, but the work of men of singular knowledge and power, so that the figures are largely and nobly composed, and the whole group or series is at once decorative with regard to the piece, and full of individual merit ; third, a covering of large parts of the piece (either the figures, or the ground which relieves the figures, as stated above) with lustrous black varnish. Of the same epoch and wrought under the same influences are the pieces modelled in various decorative forms, such as the rhytons seen in Fig. 37.

(3) Coarse pottery which is decorated by means of slip¹ in bands, zigzags, and the like, these being, of course, in rather decided relief. The slip, even though of the same paste as the body of the piece, may be of a different color. Thus, a white slip on a yellowish-brown body was rather frequent in English ware of the sixteenth and seventeenth centuries. During the epochs when slip has been much in use the forms were not generally attractive ; in fact, slip-decorated pieces are usually of inferior and not very artistic ware. The splendid porcelains decorated by M. L. Solon and others in *pâte-sur-pâte* are, however, of the same character. In these pieces, a porcelaneous colored paste forms the

¹ *Slip* : Ceramic paste made very thin by addition of water so as to be poured from a spout upon the surface of a piece before it is fired ; used sometimes for dipping the whole piece, so that the slip acts as a glaze.

DECORATION OF DIFFERENT CERAMIC WARES

body, and the artist works in the same paste, uncolored and thinned with water. When this slip is applied in a very thin coat, the colored background is seen through its translucent substance and thus a very gentle gradation is obtainable, up to pure white, where the slip is laid on thickly.

(4) Coarse pottery, covered with a very opaque glaze which hides the surface of the piece, that which is known as Faience. Some of the most magnificent ceramic wares belong to this class. Thus, the thickly glazed potteries of Italy in the fifteenth and sixteenth centuries, those called *majolica*¹ (*maiolica*) and *mezza majolica* are made of a coarse and soft ware which a stick would scratch, but this is entirely concealed by the thick white glaze (enamel) upon which the most elaborate painting has been applied (see Fig. 38.) Sometimes the portrait of a lady is painted in the middle of a flat dish; sometimes a vase with a generally white surface is covered with the most minute and delicately painted arabesques.² Some-

¹ *Majolica*: Italian ware decorated in brilliant colors on an opaque glaze, the body of which ware is usually coarse pottery. The term is of disputed etymology, the name of the island Majorca having been suggested in connection with it. As the origin of the ware is probably in the Hispano Moresque ware of Spain, and as Majorca was dependent upon the Spanish crown throughout the Middle Ages, it is probable that the above given derivation is correct. An attempt has been made to limit the application of the term *Majolica* to those pieces which have *reflets métalliques*.

² *Arabesque*: decoration in scrolls or flowing patterns of any kind, especially those which resemble Italian sixteenth-century work studied from

CERAMIC ART

times the centre of a dish or the body of a vase will receive a medallion within which a scene with landscape and many figures is given, all painted with a certain disregard of accurate ana-



FIG. 38. Majolica dish

("La Collection Spitzer")

tomical correctness in figures or perspective in landscape, and this because of the reluctant nature of the material, which lends itself easily to brilliancy of color but with difficulty to refinements of drawing. It is greatly to be desired that the

ancient Roman examples. True Eastern work, as of the Mohammedan nations, is seldom called by this name.

attempt should be made to apply such decoration to modern uses and habits; but most of the modern majolica is in too close imitation of the old, and appeals as such to buyers. The addition of such glazes as when fired will have a brilliant metallic look is due to the manufacture kept up by the Dukes of Ferrara, in that city. It has received the French name *reflet métallique* or metallic lustre, and these lustres are divisible into silver lustre, gold lustre, copper lustre; the last having sometimes a deep color of great beauty and being then called often ruby lustre. This ware was preceded in time by the work of the Moors in Spain, followed afterwards by the Spaniards after the partial expulsion of the Moors, and this is apparently the result of a study of still more ancient Rhodian and Syrian wares by workmen possessing somewhat different materials to work in. These pieces, commonly known as Hispano-Moresque ware, are seldom as brilliant as the Italian pieces, and have never figure subjects, but they are fine in shape, and the conventional pattern in silvery and pale-yellowish lustre is often of extreme beauty.

The Italian movement above described was followed by a very general adoption of richly painted Faïence. The earliest was that of Rouen, in Normandy, which may date from the earlier years of the sixteenth century. The wares of many French and Rhenish towns contended with

one another, Nevers and Montpellier with Strasbourg; and those of Moustiers-Sainte-Marie in Provence, the production of several different makers, are generally characterized by a very graceful decoration of wreaths and festoons, as shown in Fig. 39.

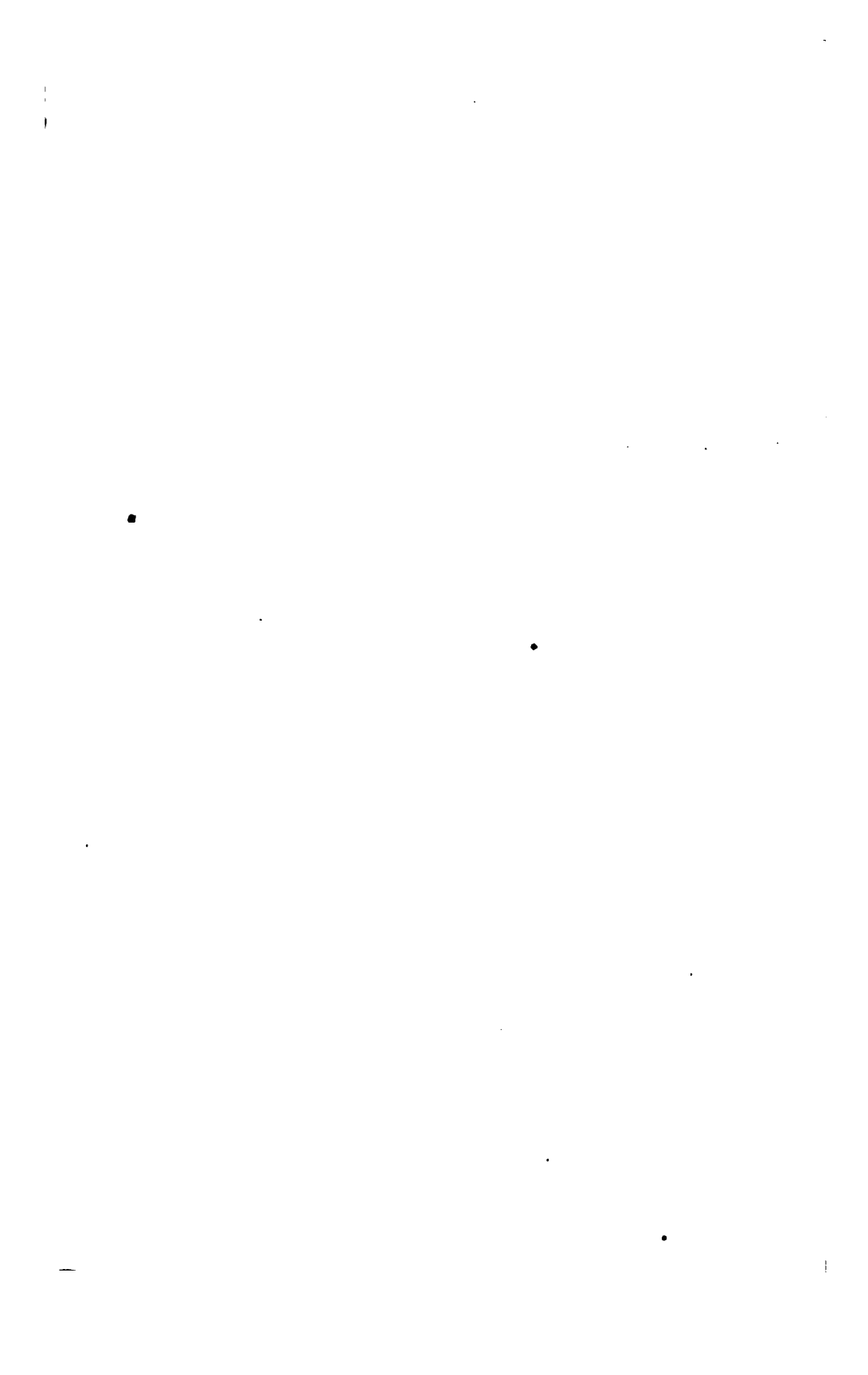


FIG. 40. Persian bottles in dark blue and pale blue on bluish-white ground
(Marquand Collection)

The matter of refined delicacy and subtlety of gradation in the coloring is best understood by one who studies the Persian wares with their close following in Syria, this industry seeming to have culminated in the fifth century of the Christian era. Unfortunately pieces in good condition are extremely rare, and bring enormous prices (see Fig. 40 and compare Fig. 34). Tiles, also, painted in Persia in the sixteenth century and later, and those closely copied from Persian models



FIG. 39. Vase, French Faience : sixteen inches high. Made at Moustiers-St.-Marie, in Provence ; decoration probably by Olérys, about 1740



PERSIAN ENAMELLED WARES

and applied to the interior walls of mosques and dwellings in Cairo, Damascus, and other Levantine cities, although devoid of such special brilliancy as was given at a later time by the metallic



FIG. 41. Persian tiles, square panel
(Marquand Collection)

lustre, are, on account of their exquisitely soft and melting coloration and the admirable drawing and composition of the patterns to which this coloring is applied, among the most perfect examples of ceramic art. Fig. 41 shows a square panel made up of many Persian tiles painted with a continuous diaper pattern, and Fig. 155 gives a

door head (tympanum) of precisely similar make and decoration. In connection with this, what is said in the course of this work about the singular merit of Persian decorative designing should be considered ; but it may be noted that such work tends to ~~the~~ great elaboration of the pattern itself, devout study of its interlacing forms and their combination, rather than to the effect of this kind of ornament upon the building or apartment which it is intended to adorn.

(5) Stoneware, as described above. Evidently the simplest way of dealing artistically with this ware is to study severe forms, and then to ornament these with stamped or incised patterns. Recent experiment has given us a much greater variety of colors and has shown that stoneware, with all its hardness and durability, is capable of the most important service in decorative architecture. These results have been reached at the Sèvres National Manufactory, and promise a great enlargement of the scope of ceramic art in the twentieth century.

(6) Yellow ware. A hard paste covered with a thin but singularly vitreous glaze, usually crackled. This is known in Europe, and may be instanced by the Apt ware, described above ; but its chief development has been in Japan. Figure 42 is a very large vase of Satsuma ware, painted with a red flowering fruit tree on a grayish-yellow crackled ground.



FIG. 42. Large vase, Japanese hard yellow ware, with crackled glaze. Province of Satsuma, eighteenth century A. D.

(7) Porcelain. Of this, the chief of ceramic wares, the centre and stronghold is the great kingdom of China, which has always enjoyed, as it seems, a monopoly of perfect skill, readiness, and adaptability in the practical arts of ceramic ware as well as that which is, on the whole, the highest range of decorative painting adapted to them. Even the exquisite work of the Japanese must be taken as derived from the Chinese example, as, indeed, the Japanese themselves are eager to assert. Research into the earliest history of Chinese ceramic art is as yet in its infancy, but for the purpose of the modern student it may be accepted as beginning with the tenth century of our era, when advance in all mechanical and decorative arts seems to have been very great. Contemporaneously with the great school of painting in China, perhaps in the tenth century of our era, the ceramic industry was greatly advanced, and the singular city of porcelain factories at King-te-Ching was established. As to the fine art of the Chinese shown in ceramic ware, it is best known to Europeans by the vases and dishes, plates and bowls, which have been brought to the West in such vast quantities; but figures of sacred and popular legend, whether of man or beast, or groups of both, and also certain utilitarian pieces, small and delicate and admitting of careful decoration are to be included. The fault most generally found by very refined artistic students in the

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West is that Chinese painted decoration on porcelain and on fine pottery is hard and sharp-edged, the colored or gilded flower too visibly picked out and isolated upon the bluish-white ground. This tendency may be admitted as being less per-



FIG. 43. Chinese porcelain bowl

fectly satisfactory than the Persian tendency toward a more delicately graduated system of passing from background to pattern; but this admission once made there is nothing left but praise for the exquisite drawing, the elaborate and careful study of nature, and the extraordinary brilliancy of color produced by the Chinese decorators of porcelain. Where the painted pattern is minute and complex this hard and sharp look tends to disappear. Thus in Fig. 43, a small bowl is painted with a very

conventional landscape, a fortified gateway with the houses of a town, and those outside of the town built upon piles in the river ; with rocks and trees and distant mountains. All this is in full color, generally translucent, and much graded by just such stippling as would be done in water-color. The sky behind the city is green, passing slowly into reddish-brown, the foreground rocks are blue and dull green, and the less translucent colors, red and orange, are used in the foliage, the blossoms of the bare trees, and the flags among the shipping. The admirable painting of certain large and showy pieces of hard and crackled pottery of Japan is alone to be compared with the finer painted decoration of China.

Chapter Nine

THE VITREOUS¹ ART

GLASS has been in use since the twentieth century B. C., when it was common in Egypt; but although much used there and afterwards in China, it was rather as a somewhat costly, and somewhat unmanageable material in which were made delicate toys, jewelry, and emblematic or religious figures, to which in a few cases a higher order of artistic design was imparted; but rarely for any utilitarian purpose. Among the inhabitants of Greece of the Mycenæan² age blue glass was in use as a material for colored inlay, producing very beautiful effects in architectural friezes and the like. The question as to whether any people of

¹ *Vitreous*: having to do with glass, which itself is an amorphous, that is, non-crystalline metallic body, the name being given especially to artificial products, not including obsidian, which is a volcanic glass. The making of glass is the fusing of flint and similar bodies in connection with soda. The substance is not necessarily transparent, but it tends always towards translucency as it does towards a polished surface, the lustre of that surface being especially designated as vitreous lustre.

² *Mycenæan*: belonging to an early and not accurately dated epoch thought to be of the years before 1000 B. C., the artistic remains of which were first studied when found among the ruins of Mycenæ in Greece.

antiquity had glass windows is answered by the discovery of at least one window in Pompeii with pieces of glass well set in a bronze frame; but it remains doubtful whether such windows were at all common. It is noticeable, however, that the civilized peoples of antiquity, living along the Mediterranean and in lands that, then as now, were warmer than the northern parts of Europe, seem to have felt indifferent to their winter in a way comparable to that disregard of cold shown by people of modern Italian cities, where fires in houses, at least for the Italians themselves, are almost unknown, except for cooking, and the people even in open shops reach some degree of comfort by additional clothing. The disregard of cold seems to have been carried much farther in antiquity even than in modern times, as is evident by the great number of residences which had no floor except the natural soil, or such modification of it as might consist in sand filled into a restrained space and paved with tiles. The hypocaust¹ was, naturally, limited to a few costly residences and the public baths. Under these circumstances the window was most commonly open to the admission of air as well as light, both being checked in their entry by a screen of some sort, a grating or slab

¹ *Hypocaust*: in Latin a flue; hence in archæology, a hollow floor or wall or combination of both through which the smoke of a furnace might draw; a convenient way of warming the air of a room, and giving to the occupants direct radiant heat.

THE VITREOUS ART

pierced with holes for all windows but the smallest. For other semi-utilitarian purposes, however, glass was, at least during the last four or five centuries of the Greco-Roman civilization, in use



FIG. 44. Two small plain bottles
(Marquand Collection)

much more freely than in our own time. Thus the Romans, in addition to their abundant stock of materials for wall-lining, such as rich marbles, cheaper white and veined marble, mosaic of various materials, and tiles of earthenware, had also tiles of glass, beautiful in color and often charged with bas-reliefs of human subject. As for the Roman use of glass for vessels, it was very exten-

DECORATIVE GLASS IN ANTIQUITY

sive, but in this the people of the imperial epoch followed the example of their predecessors for three centuries.

The tombs of all the Mediterranean lands are found to possess a rich treasure of vials, basins, plates, and vases. Fig. 44 shows two of the smaller and simpler bottles, such as are found



FIG. 45

in graves in the lands of the eastern Mediterranean.

The rough look of the exterior with parts about to peel off is the result of that same decay in the substance which gives the varied colors spoken of below. In all these simple vessels the general beauty of form is very noticeable. The adjoining figures give pieces of much greater variety of design,—the piece Fig. 45 having an



FIG. 45 *bis*

original lavender color of great delicacy apart

from all decay and subsequent iridescence; Fig. 45 *bis* a delicate greenish blue; and 45 *ter* a green so pale that the glass, while it retained its full transparency, must have been nearly as colorless as a modern fine tumbler. The fantastical handles and other applied ornaments are simply ropes of softened glass made to adhere while hot; and



FIG. 45 *ter*

even the thin thread which is wound around the neck of the piece 45 *bis* is of glass pulled out thin and fine.

The ridges, 45 *ter*, are pinched

up or raised from the body of the glass while plastic. Some of the vases in our museums are so large as to hold two gallons or thereabouts, these large ones being frequently used as cinerary¹ urns.

¹ *Cinerary*: having to do with ashes. Cinerary Urn: one used to contain the ashes of the dead body which has been burned, though it is doubtful whether the adjective is derived from this use of it or from the use of heat in baking the clay from which the majority of such urns are composed. Some of these urns are not vase-shaped, and in Etruria there are many which are made like small clay models of the houses of the people, — sometimes square or oblong with gabled roofs, sometimes round, sometimes covered with bas-reliefs, also in baked clay; having often the cover crowned by an image of the deceased, usually in a recumbent attitude. The use of vase-shaped vessels was, however, so general as to make our modern use of the word “urn,” as almost equivalent to vase, reasonably accurate.

COLOR EFFECTS IN GLASS

The brilliant iridescence of some of this ancient glass is the result not of design, but of a natural process of decay. The artistic character of this glass is to be found in beauty of general form, fantastic details of ornament, and original coloring in amber, blue, and more rarely other brilliant hues. If the student will disregard iridescence, which has no more to do with the artistic quality of the piece than the sparkle of an ore or the colors of a pebble on the beach, he can buy exquisite ancient glass at a very reasonable price.

Glass requires a very high temperature in the furnace in which it is fused. The materials being once melted together may then be colored in almost any shade, for although the number of pigments which will bear the heat is limited, the mingling and combination of these is sufficient to give much variety of hue. Besides color in the usual sense, glass will take other very interesting characteristics. Thus what is called arsenated or simply arsenic glass is made by the use of a salt of that metal, which gives to the glass a curious milky tinge and makes it nearly opaque, while the edges through which light passes show a spark of a warm color quite different from the cloudy white of the body as seen by refracted light. A modification of this process gives what is called opalescent or opaline glass, in which while the cloudy white and the bright spark remain the same, the translucency is

THE VITREOUS ART

more complete, and therefore the red or orange transmitted light is more effective; but this opalescent glass may then be stained or dyed in the mass without losing its opalescent quality, and this property is at the bottom of some modern improvements in decorative windows of which more will be said below. Moreover, as glass when withdrawn from the furnace begins to harden very rapidly, and takes a pasty consistence, in which state it can be moulded, rolled out and shaped easily, it has been found possible to insert into the solid mass pieces of colored glass previously prepared; and a development of this process has given the world an extraordinary series of glass vessels dating from Roman imperial times and from the sixteenth and seventeenth centuries, in which solid, clear, uncolored glass, like crystal though not so brilliant, holds embedded in its mass pieces of opaque glass in a great variety of colored patterns. The general aspect of such pieces is rather curious and fantastic than beautiful in a very high sense, but no work of man's hands inspires more respect for the skilled ingenuity of those who have brought it to perfection. Another variety of this is the well known *Vitro di Trino*.¹ Fig. 46 shows a piece of this curious ware in which the clear glass encloses white threads; larger ones of the

¹ *Vitro di Trino*: "thread glass;" that which is filled with white threads buried in the transparent mass.



FIG. 46. Glass Dish. Vitro di Trino
(Marquand Collection)



MOULDING AND MODELLING OF GLASS

tapering form, smaller ones laid parallel to one another and in two layers, so that each set of these threads looks like a net, though in reality the threads do not meet.

The viscosity of glass when half melted enables it to be welded together in almost any manner, and with reasonable security even for very small pieces. Thus the modern glass factories of Venice keep in stock a certain number of patterns of goblets and wine-glasses, and they make no difficulty in taking an order for a set with the bowl of this pattern, the foot of that, and the stem with its knop and branches of a third pattern again. Such work, though to be deprecated from the point of view of good taste, shows how easily glass can be handled. In this way also is made that glass which is the richest in effect of all antique wares, the vases adorned with waved bands and zigzags of contrasting color, closely cemented together to form the piece.

Glass can also be pressed in a mould, and it is rather common in the modern Venice product to see mascarons¹ of red or of some other brilliant color put on two opposite sides of a finger-bowl

¹ *Mascaron*: a carved or moulded resemblance of the human face more or less grotesquely treated and made to resemble the face of a satyr or other semi-human imaginary creature, used as a decorative appliance. Such ornamentation was common in the neo-classic work of Europe after the time of the Renaissance. In architecture, the mascaron may be colossal or of life-size, hardly smaller; but in the minor arts it is used of all sizes.

THE VITREOUS ART

or the like. Where such pieces, rather solid and heavy in comparison with the thin bowl itself, have been affixed, the glass is apt to be very brittle. Moreover, a pressed glass is never very delicate in its parts; the forms are never sharp and clear, and their possible subtlety is injured by the very lustre



FIG. 47. Two Persian aiguières
(Marquand Collection)

which makes glass especially attractive. This adhesive quality of the partially cooled glass gives us also the admirable work shown in Fig. 45; and also the more utilitarian building up of a vessel from many parts as seen in Fig. 47, which shows two spouted vessels, aiguières, of Persian make. The handles and some of the ornaments are deep blue, but the body of the piece is nearly transparent, and is but slightly tinted.

Besides its capacity of being moulded and cast, glass is extremely ductile and indefinitely expandible, and this allows of what is known as glass-

blowing.¹ We have, then, the possible combination in a single small vessel, such as a drinking glass, of a moulded foot, stem, and boss, with a wing of drawn-out thread-glass twisted into a filigree² on either side of the stem, or a very elaborate piece of twisted and platted glass-ropes to replace the stem, a bowl of a fantastic form mounted upon this stem, a separate cover with a knop of indefinite complexity also moulded and applied, and every part of this filled with patterns in the glass itself, or so colored in the mass that each part is a chromatic design of some elaboration. Nothing, in short, but the good taste of the workman prevents the accumulation in one vessel of too many different effects of form and color to be satisfactory.

Fig. 48 is a wine-glass all of one color, the bowl of which has been cemented to the stem while both parts were hot; but the stem itself is made in one piece as the bowl is. In either case the rounded hollow form is produced by the use

¹ *Glass-blowing*: the process of shaping hollow vessels of glass by blowing through a tube into the half-fused mass, which process may be extended to the inflating of the glass into large cylinders, which then, being cut down one side, may be flattened out into smooth sheets. This was the commonest way of making window glass until quite recent times. Bottles and similar vessels are made by some modification of the glass-blowing process.

² *Filigree*: literally, thread-work; ornament by means of fine wires, or the like, so twisted and combined into scrolls as to produce an open, flat pattern. Small balls or grains of metal or glass are often secured to the wires or threads as a further decoration.

of the blow-pipe, as indeed is the foot itself. The shears were used to give the shape required to the foot and to limit the height of the bowl.



FIG. 48. Wine-glass, seventeenth century

Fig. 49 is a wholly modern bottle-shaped vase of Venice glass, to which the elaborate wreath of leaves and flowers is attached while hot, each little piece by itself, a combination of many translucent colors. The separate pieces, though welded to the body while both are hot, are so disposed as to give the effect of a flowering branch twisted

spirally around the vase. The body is thick, nearly transparent, and of a delicate amber, while the leaves and flowers are subdued green and blue in many gradations of color.

The extreme brilliancy of colored glass suggests decoration by these positive hues even with-

out beauty or interesting complexity of form. Thus some work done during the last decade of the nineteenth century was noticeable for its lustrous and modulated color added to the surface of vessels of no special character of form; the colored glass being applied in thin layers while both these and the body were at a high temperature, — a fact which differentiates this work from all kinds of enameling.

It is easy to see how attractive to the artist are all the above-named various modes of

adorning glass vessels. Boldness and delicacy, variety of form and color, leading on to richness and brilliancy or to extreme delicacy, are alike to be got by the glass-worker, whether he works alone with a blow-pipe and a simple gas-flame, or at the furnace mouth as director of half a



FIG. 49. Venice bottle, fifteen inches high

score of skilled operatives. At the Paris exhibition of 1900 were wine-glasses of singular refinement of form and color, made of a single lump of hot glass drawn out into a tube, compressed in a mould, expanded by the blow-pipe, trimmed to size with the shears,—marvels of delicacy; and these are said to have been made, and might have been made, in the dwelling of the amateur workmen who imagined them. Again, near at hand, were the great New York pieces, blazing in purple and gold, of no great beauty of form, but rich with iridescent lustre. And in neither display was there a single piece of any one of those decorative effects which were used by Romans of the second century or Venetians or French of the sixteenth century—so vast is the field of legitimate decorative design in glass vessels.

To all those processes which are natural to the make and to the nature of glass, there are to be added some less approved processes which by turns are popular. Thus glass can be cut, as it is called, by means of a revolving wheel, and for this purpose the glass is cast heavy and clear, of the most brilliant material that is obtainable. This is generally flint glass¹ of which is made

¹ *Flint Glass*: glass which contains much lead; it is heavy and has great refracting power, which makes it brilliant in a way resembling the brilliancy of rock crystal.

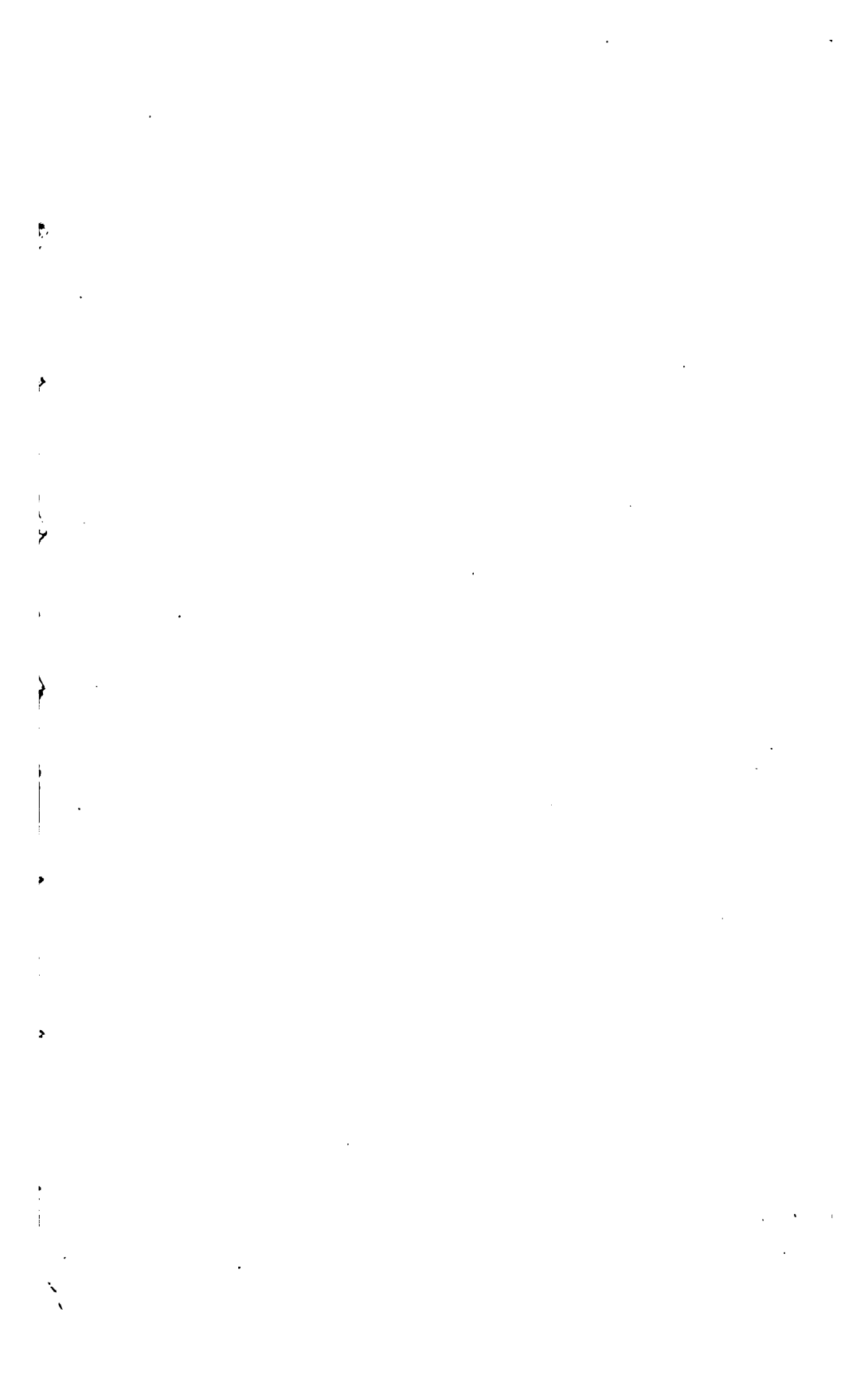




FIG. 50. Hanging Lamp, eleven inches high. Glass engraved with acid. The chain, brass, with colored wooden beads.
Syrian work, uncertain epoch



CUT GLASS AND ETCHED GLASS

also that strass¹ which is used for imitations of diamonds and the like. In cut glass, the surface is often channelled with long grooves alternating with ridges; by the intersection of these, hundreds of diamond points may be produced, or stars or triangles, or still more elaborate set patterns. By means of the wheel is done also engraving upon glass, and an extension of this process into a mere depolishing of the surface, so that an opaque leaf or head shows white upon the clear ground.

There is also the process of etching upon glass, the acid being used exactly as in etching upon metal, for which see Chapter XIX. The acid used is different, but the process nearly the same. When used in a rather bold pattern, as in Fig. 50, the result is to produce a design very slightly marked, of depolished glass, contrasting with the background, which has the full vitreous lustre. In the present instance the color of the whole body of glass is warm green, and the most notable distinction between pattern and ground is that the latter is transparent, so that the figures on the opposite side are visible through it. This process, in some modern work, leaves upon the glass lines of peculiar softness with a slightly glittering edge, unlike any other line which is in use in the arts.

¹ *Strass* : flint glass of exceptional refracting power, from which are cut imitation gems. This is called also "Paste," as a term distinguishing the artificial compound (French, *pâte*) from the natural material.

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Elaborate landscapes and the like are produced in this way in clear and also in colored glass. Glass too may be flashed; that is, glass of one



FIG. 51. Enamelled tumbler

color may be imposed solidly upon glass white or of another color, the two sheets being really welded together as described above in connection with glass vessels. By cutting through one sheet or layer until the other is visible, a pattern of peculiar quality can be obtained, comparable to that produced by cameo-cutting (see Chapter XXI). Finally, glass is extremely susceptible of the

application of other glass to its surface, when cold, in the way of enamelling, as described below. It is in this way that are made the magnificent lamps and vases of Moslem origin used in Syria and Egypt. The art is no secret and has been practised in Paris with singular

ENAMELLING ON GLASS AND METAL

success of late years, pieces being produced as beautiful probably as anything in the East, but the designs are frankly Oriental in character, and the finest pieces may even be thought to be close copies of Levantine originals. Fig. 51 shows a tumbler made by the most skilful of these Parisian workmen, and of a design more nearly original; the enamel in opaque green and white is raised upon a nearly transparent body. A lamp like that shown in Fig. 50 in shape, but two feet high and covered with enamelling in patterns, with legends in Arabic character, or a vase like one or two of Byzantine origin which still exist, may be thought as splendid a piece of decorative work as men have imagined and brought to completion.

Enamelling¹ is applied to surfaces of metal, of ceramic ware of a certain hardness, and of glass. The variety of its uses is very great. Thus, the dial of a white-faced watch is of opaque enamel on a plate of copper; or if the watch is an ornamental eighteenth-century piece, of some fineness, the gold case may have enamelled patterns and paintings applied to or encrusted² into its outer surface.

¹ *Enamelling*: working in or applying enamel, which is a vitreous paste ground fine, mixed with gum water or a similar sticky medium, and applied to the surface to be decorated, and then fused in place by the heat of a special furnace.

² *Encrusted*: let into a surface, as one piece of an inlay. The term is used especially for the inlaying of a piece of sufficient importance to form a design by itself; thus a disc containing an enamelled pattern

THE VITREOUS ART

Enamelling on glass has been mentioned above; (see Fig. 51), but the connection between this and enamelling on metal and on pottery should be kept in mind. If we examine a piece of that Chinese or Japanese porcelain which is adorned with green and especially with red colors, "overglaze," we shall note a bubble-like surface, the translucent color rising in a convex swell to a definite thickness (see Chapter VIII, Fig 35). It is exactly in this way that the enamel looks which has been put upon glass and fired. In either case it is simply a brushful of stiff color which has been fused, gaining thereby a fixed consistency, extreme hardness, and a glassy lustre. When enamel is put upon metal the same result follows. If you take a plate of pure silver and paint upon it with blue and green enamels held in solution in gum water, the surface of little masses of the semi-liquid color shines in a transparent sort of way, and shows considerable refracting power. If this piece of silver is passed into the enamelling furnace and kept there for six or eight minutes and then withdrawn, it will often look as if no change had taken place. The plate of silver and the enamel on it is all so hot that it would set fire to a shaving of wood which might touch it, but this does not appear; the completed enamel looks very like what the still wet bubble was. It is, however, hard

may be set into a surface otherwise adorned, and is then said to be encrusted.

and durable. The reason why the enamels that we buy, whether the cheap buckles and fan-mounts which come from Russia and are made according to the year's fashion, or a priceless piece of Chinese work three hundred years old, or a Byzantine book-cover a thousand years old — the reason why this does not present the same appearance as of a series of translucent rounded surfaces is that those bubble-like masses have been ground down, and either polished to a uniform surface or left with a soft finish like that of marble as it is commonly used in statuary. Sometimes, too, in certain kinds of enamelling, the semi-liquid matter has been put into a little box or fenced enclosure so small (from a quarter of an inch to an inch in either dimension) that the surface is rather concave, the viscous liquid clinging to the little fence which encloses the space filled with enamel, and therefore lying deeper at the edges than in the middle. Some oriental enamels come to us with this surface unaltered. Enamelling on glass (see Fig. 51) is often of this nature, but without the walls — the *cloisons*, as they are called — the bubble of liquid matter keeps its place sufficiently. The large subject of enamelling on metal is treated also, in connection with metal work, in Chapter X.

The different kinds of enamelling are mainly three; and they must be considered separately. There is, first, that which covers the whole surface, as in the case of a watch dial mentioned above.

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This can be painted on, exactly as the surface of porcelain or the glaze of faience can be painted on, and both in the Orient and in Europe, especially during the eighteenth century, vessels and other ornamental objects of considerable size have



FIG. 52. Tray about 15 inches long. Surface enamel
(Marquand Collection)

been made which depend wholly for their effect upon painted enamel. Thus a Chinese bowl or a tray will show a uniformly white surface covered with the most dainty paintings of vines and flowers or perhaps figures in bright costumes, and a landscape background, all exactly as on the porcelain vessel, the surface alone and the metal edges at top and bottom showing the difference of the material (see Fig. 52); and in France there are still

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produced, in direct and natural evolution from the pieces of the eighteenth century, ornamental boxes, shallow cups, and lamp-stands, as well as much smaller pieces, which are painted in precisely the same manner though with great difference in style. In fact one of the most famous branches of decorative art known to collectors of original pieces consists of the painted enamels of the sixteenth century known by the general name Limoges enamels, as shown more fully below.

Translucent enamel may also be used for the whole surface of a piece, applied upon the metal like varnish. Thus in Fig. 53, the large upright flower and its calyx, and the small blossoms, buds, and stems are all wrought in silver and covered with thin layers of enamel, nearly transparent, and of very realistic coloring — purple, brown, and yellow of many differing hues.

Painted surface enamels are the most often used for decorative vessels and other pieces of considerable size; and the smallest and finest examples, such as portrait heads on a gold ground, are used for jewelry, as to be set in the chaton of a ring or the medallion of a bracelet. The finest and largest pieces are often framed like pictures. It is clear that the artist who works upon this kind of enamel is a painter in a very difficult method, not unlike ceramic painting.

The matter of painted surface enamel, as practised in Europe in the fifteenth century and soon

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afterward, with imitations in later times, is peculiar in the almost complete abandonment of the work to one single effort, namely, that of de-



FIG. 53. Small Japanese vase. Enamel on silver

veloping a complete system of painting in white upon black, or nearly black, ground. The finest Limoges enamels have this monochrome character in the most marked degree, for the use of gold, which appears to modify very much their effect

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as decorative design, is entirely superficial, as the gold is added after the work is otherwise complete, and serves to furnish a few brilliant points and to supply what would seem to have been lacking in brilliancy, in the blade of a sword, the reins of a horse, or the like. The fully colored plaques are far less attractive, even the priceless ones assigned to the family of Penicaud in the fifteenth century. In these, the blue and red seem to have been added in the vain attempt to make a color-composition of a gray monochrome. This characteristic of the development of the painting in white upon black is the most radical distinction between European surface enamelling and European porcelain, in their decorative tendency. Such a tendency appears in Oriental enamels, too, although these are very commonly white in their principal body and are then painted almost exactly as the white porcelain is painted; for, again, many are of a semi-transparent blue upon which the flowers and scrolls are painted in opaque white, and even where translucent green and opaque red are added to the scroll patterns or to the touching of the flowers, this seems to be laid in every instance upon the white. The painting upon the surface of enamel is therefore much more limited than that upon the surface offered by fine pottery or by porcelain, and the taste for it is more of a technical admiration for the rare and curiously difficult work.

The second branch of enamelling is that in which the surface, usually of metal, is engraved out or carved in intaglio, the enamelling filling this sunken space, and very commonly ground and polished down to an even surface with the surrounding unaltered metal; so that the pattern shows in blue or red or in several colors on the gold or silver ground (see Fig. 54).



FIG. 54. Under side of
Indian bracelet

This kind of enamelling is called *champlevé*, that is, with the field apparently raised, because the background is left in relief above the engraved or sunken pattern. One variety of this has the background beneath the enamel carved or raised in relief from the bottom of the sunken panel, or even adorned with inlay of some sort, the whole of this being visible through the enamel, which in this case must be translucent, or rather *transparent*, to show the background clearly. If this enamel be ruby red, or of a deep greenish blue, through which the gold or silver ground

CHAMPLEVÉ ENAMELS

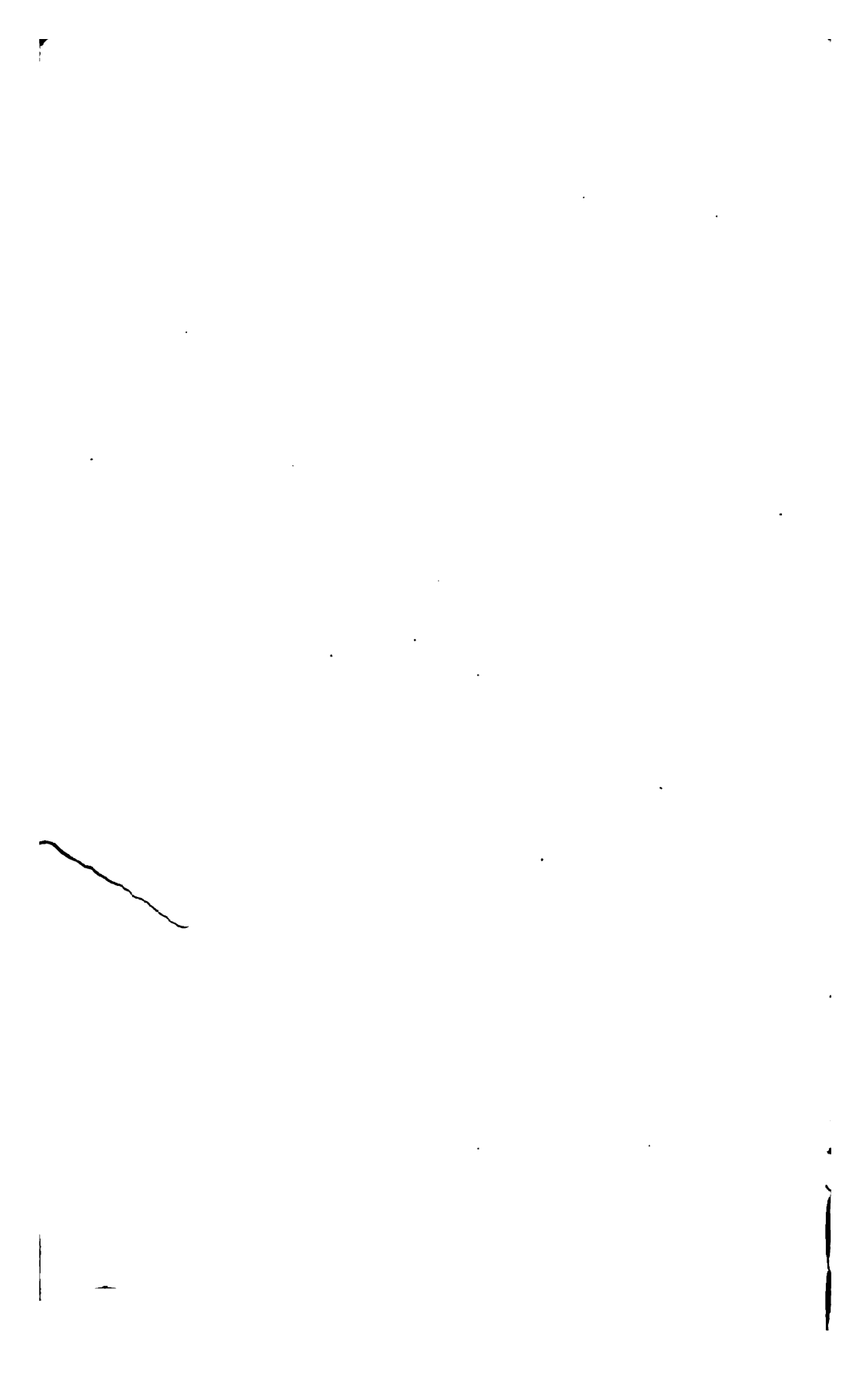
is seen to be engraved more or less deeply, there is produced a pattern which shows in red or blue of differing intensity, and even of differing character, as the enamel is deeper or less deep. Fig. 54 is an Indian bracelet, the under side of the piece which is shown in Chapter X, Fig. 64. Here the larger part of each little link or boss is transparent enamel of vivid red, showing the gold beneath, engraved in imitation of a gingko leaf; the red relieved by the little white patches, which are quite opaque; there are also touches of brilliant green which seem to form a calyx to the red and white flower, and again others on the little projections which form the swivels or hinges. The fitness of enamel for minute decorative work is seen in this, for in less than a quarter of an inch there are eight patches of enamel in three different colors, and one hundred and five separate bosses of this description in the bracelet. The name, *émail à plique* is applied to such enamel work as this, — the origin of that French term being in dispute. The name *émail en basse-taille* is given to pieces in which the background seen through the enamel is carved in relief. The name *émail en taille d'épargne* is applied to any work of champlevé enamel in which very little is left of the original metal surface, so that the piece can hardly be told from cloisonné enamel as described in the next paragraph. Champlevé enamels, rare in Eastern work, are most used

in Europe since the Middle Ages for the adornment of snuff-boxes (from 1750 to 1820), patch-boxes, bonbon-boxes, and the like; but the bronze and copper liturgical metal work of the years before 1500 — shrines, altar crosses, processional crosses — was constantly made ornamental in this way.

The third kind of enamel is what is known as cloisonné — *émail cloisonné*; in the plural, *émaux cloisonnés*. This ware was originally, and still is in theory, produced by building up little walls or enclosing-strips of metal secured to the background, in the first place lightly, and then more permanently by the heat of the enamelling furnace itself, and filling up the little compartments so produced by the fine-ground enamel of different colors. In this way a mosaic results, the divisions of which are separated one from another by very narrow bands of metal, which, when the whole surface has been ground down even, show usually as yellow metallic lines, the metal being commonly brass or gilded bronze. Fig. 55 shows a candlestick about fifteen inches high in which all the rounded parts are covered with a mosaic of enamel in rich colors divided by partitions of notable thickness of gilded brass. The background is of a lighter and of darker blue; and there are used in the pattern a deep red, two greens, and a vivid yellow, as well as the two blues mentioned and the gilded boundary lines. This work has hardly



FIG. 55. Candlestick of Chinese Cloisonné enamel, fifteen inches high ; seventeenth century A. D.



been practised in Europe since the Byzantine period, and but very few pieces of it exist; but in the far East it is made in enormous quantities, as it has been for a few centuries past, even vessels for serving food being made of it; and vessels of metal or of porcelain six feet high and covered in all their parts with the most elaborate and brilliant patterns come to us from China and Japan alike. In some of the finest pieces, however, the color overruns the boundaries of the little spaces reserved for it and in a very curious way the tints are softened by this slight mingling of one with the other. It is hard to say how far this is deliberate, — it looks sometimes as if mere indifference had caused it, — but the Chinese are such consummate masters of this craft that it is more probable that a temporary exaggeration of the whim for softness or lack of definition has given the careless appearance referred to.

On the other hand a modern development of the art is in the direction of using partitions of extreme fineness; no longer of about a thirty-second of an inch thick (or wide on the surface) as in the ancient Chinese pieces, but as thin as hairs; and these not boldly separating the colors one from another, but disappearing at intervals as if some of them had been withdrawn before the color was quite hardened in the fire. The result of this is to produce a surface more nearly resembling that of painted porcelain or of painted sur-

face enamel than of cloisonné. The pieces that have been exported from Japan since 1885 are often of this character, but lovers of Oriental art and industry do not often find these pieces attractive.

One variety of cloisonné enamel comes without a solid background. It is, of course, built up on a metal plate, but it is not made fast to that; and the only strength of the sheet of enamel mosaic with metal divisions—a sheet perhaps one thirty-second of an inch thick, comes from mere adhesiveness. This, if made of translucent enamel and polished on both sides, is a beautiful transparent plate, which is called a piece of *émail à plique à jour*, and little cups have been made in this way by still living Frenchmen, while jewels so made are not uncommon. Cloisonné enamel is sometimes brought from China in large flat plaques probably intended for the doors of cabinets of unusual splendor, which pieces of furniture are often built of wood with only certain incrustations, and the movable doors of another material. A similar use of the process is seen in the flat book-covers of the Byzantine manuscripts. By far the greater number of pieces are copper and brass vessels of which the surface is wholly or partly adorned with the enamel. An iron tea-kettle will have a cover with a brass knop, the whole nearly flat outer surface of the cover enamelled in three or four colors with the metal

lines marking the pattern. The larger vessels are sometimes entirely covered with enamel, nothing of the metal showing but the thin separating lines and the slightly wider bands of brass at the lip and the foot; and these are usually the finest pieces, at least from the art student's point of view, the beauty of their sombre harmony in blue and green with but slight relief of deep red and vivid yellow being unmatched, except by a few Persian carpets, in all the range of abstract color decoration. Very many of the large and costly pieces are completed by a great display of gilded brass at the knop of the cover, the handles and feet of the vase and other parts of the frame which are allowed to show and which are enriched with chased or engraved patterns.

We have now to consider the use of glass prepared for decorative windows. The primary necessity of this glass is delicate and sometimes rich coloring, as the purpose of what is called a "stained-glass" window is architectural decoration. The secondary purpose, that of containing a significant design, as, in church windows, a sacred scene, personage, or emblem, is fulfilled partly by the combination of the different pieces of different colors exactly as in mosaic work (see Chapter XVIII), but also in part by the painting of the separate pieces of glass. This manner of treating glass was carried to very great lengths in the later Middle Ages. From the twelfth century on, win-

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dows in churches were enriched by colored glass, and in the thirteenth century, in consequence of the introduction of ribbed vaulting and the enlargement of the window space in the Gothic style to an enormous comparative size (see Chapter XXVI), the demand for "storied windows" became eager. The painting was mainly of the nature of stopping out the light or obscuring the piece of glass, and rendering it opaque; but, by means of thinning out the opaque color, a semi-translucency was obtained, and by shading with thin lines a similar effect with more brilliancy could be secured. The color of this opaque painting was almost indifferent; it was usually a dark brown, the pigment chosen having been evidently that which was most easily obtained in considerable quantities and most easily and perfectly fused; for all this painting is of course fired in the furnace exactly as the painting on pottery or enamelling on glass is treated. In the sixteenth century there was introduced a translucent enamel of a beautiful pale yellow, and this "silver stain" was so eagerly seized by the artists of the time that the already changing character of chromatic windows was rapidly modified into something quite different from the mediæval type. It became common to make designs in uncolored glass set in leaden sash-bars, which glass however, was not perfectly translucent, but was of a more or less yellowish gray, and upon this the silver stain

COLORED GLASS FOR WINDOWS

made beautiful patterns. It was feasible to put in the middle of such a field of gray and yellow, nearly transparent, a strongly colored figure such as a portrait or the effigy of a saint, made of richer colored glass more or less strongly painted in parts; and such windows, though not perfectly successful according to our ideas of good taste, were in use for at least a century in what we consider the most artistic epoch of modern times. The composition of the colored window and the various devices by means of which one color re-invests or modifies another one are treated in Chapter XVIII.

Glass of perfect purity and transparency is unfit for decorative windows, as was found to be true when the workmen of 1850 and thereafter tried to make fine windows for their decorative churches. New glass had to be made in deliberate imitation of the old, with bubbles, with irregularity of thickness or of tint. Later, when certain American artists undertook a farther advance in translucent color design, glass was made for them of a richness and variety of tone never before produced. This enabled the designer to work in pure mosaic, the patch of glass containing in itself all gradations of color and light that could be desired. It is only the faces, the hands, the actual nude parts of a figure subject which cannot be left unpainted: (see Chapter XVIII).

Chapter Ten

METAL WORK

MANY different manual arts are used in connection with the different metals. A coin, a cast-iron cannon or pot, a wrought-steel key, a rolled-steel rail, a cast and chiselled bronze statuette, a hammered copper pot with patterns raised in relief, are so different in method of work and in results that this chapter deals with many differing arts rather than a single art in different developments.

Metal is used in both construction and decoration,—the constructional work, with which we have not to concern ourselves here, being almost entirely of cast iron and wrought iron. It is one of the misfortunes attendant upon modern architectural practice that the very material which makes up the constructional framework of the largest undertakings in the United States, and which is much used everywhere, is incapable of decorative treatment when so used, except in occasional instances, and that for two reasons: first, the comparative hardness of the metal and its consequent

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unfitness to receive ornamental forms, either in the handling of each separate piece or in the combination of the pieces ; and second, the necessity of covering and protecting it from dampness (as by paint), and more essentially from the possible danger of fire. Wrought iron is indeed fit for the most elaborate artistic treatment ; but when so treated it is hardly ever constructional in its application. When used for the essential parts of a building, wrought iron and cast iron alike must be covered up ; indeed the building laws of some modern cities forbid positively the use of constructional iron work without a complete enclosing of every part of it with brick work, terra cotta, and the like ; and in those cities where these laws do not exist, because of the rarity of dangerous fires, they are sure to be introduced as iron-framed buildings become more common. On the whole, then, constructional iron-work is of but little importance in the examination we are now conducting, except as it may be found to affect the problems of general design in architecture (see Chapter XXVI).

Decorative metal work is, then, divisible into, first, that which is cast, and usually afterwards chased, chiselled, filed, and surface-finished in one or in all these ways ; second, that which is wrought by the hammer, beaten to very thin plates, or beaten out into bars, strips, or rods, which themselves may be at their extremities or

elsewhere beaten out into leafage or the like; third, that which is drawn into very fine wire or thin narrow strips and then twisted and soldered into the patterns of what we call filigree; fourth, that which is struck as a coin is struck, powerfully compressed into a die of harder material. Under the first of these categories come nearly all the bronze work and a great part of goldsmiths' work, silversmiths' work, and some little work in iron. Under the second head is repoussé¹ work and all that goes with it, namely, the chasing back or hammering back of the surface together with so much engraving or cutting away of small parts as may be called for; and also wrought-iron work in the usual sense. Under the fourth head come all coins, medals, and medallions except those that are cast: but the artistic part of this work is to be considered under Die Sinking in Chapter XXI. In like manner enamelling, niello-work, damascening, and engraving may be considered rather as work done upon metal as a foundation or background than as metal work proper. Work in wire, and all that done by "spinning" and

¹ *Repoussé work*: that which is beaten up, usually from the wrong side, into relief. The artist holds the plate in a firm vise or pair of pincers, and looks at the right side of it. The hammer is fixed firmly to the work bench and has the head and long handle or rod of metal either in one piece or with the head screwed fast and firmly to the rod. The assistant (usually) keeps this hammer in a state of vibration, the head continually striking the underside of the plate, the artist moving the plate about and watching the gradually changing form of the relief which is thus produced.

HAMMERED WORK—CAST WORK

drawing with rollers may be disregarded here. Artistic work is possible in each of these ways, but is rare.

As to metal work that is cast before being finished, the most important of this is the bronze work which has always gone side by side with carving in marble and other hard materials, and has with it been the principal material for sculpture. Originally, bronze is cast in a mould which has been made in pieces upon the model furnished by the sculptor, or upon a plaster cast from this model which will furnish a harder surface. A bust may require that the mould be made in seven pieces; a statue or statuette will have a mould in twenty pieces or more, and where these pieces join there is a ridge left in each casting which is made from their conjunction — from their putting together into a single hollow matrix.

These ridges have to be filed down by hand, and this leads to finishing with files over a large part of the surface of the casting, which finishing may seriously injure the piece as an artistic conception, or, if carefully watched by the artist, may tend even to its further refinement. This is the usual process, as has been said, and the mould is taken apart after each casting has hardened, and put together again for the making of another casting. With proper care, therefore, many pieces may be made which will be practically close repetitions each of all the others. In fact, even in

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modern commercial industry, the bronzes turned out by a first-rate firm in Paris or Vienna may be assumed to be accurate copies of the model, the somewhat inferior interest which such pieces possess being perhaps traceable to the reducing process by the extraordinary machine referred to elsewhere, and partly to modifications introduced in the model itself in order to allow of more rapid and cheaper reproduction. It is not meant here to imply that such changing is at all the general practice; but the assured fact that the polished dark brown bronzes for sale at high prices and which pass as reproductions of modern statuary, are so often unsatisfactory may be explained in this way. Where a bronze is held by the artist and is reproduced only as orders for copies come to him or his agent, the fiftieth reproduction would naturally be as good as the first, and there are bronze foundries which pride themselves on the possession of a certain number of models of fine work which they engage to reproduce with absolute fidelity. Where it is intended to produce many copies, and at rather low prices, it becomes essential that the mass should be simple, the moulding and casting easy to bring out aright, the finishing processes quickly done with. It is therefore natural that the tradesman should select a simply formed original, or, if a more elaborate one be in demand, that he should work from a modified copy of the original.

When, however, only one copy in metal casting is needed, the mould need not be made in so many pieces, but in enough pieces only to ensure safe removal once, and satisfactory putting together again once, only. This difference may not be so very great; it may take nearly as many pieces in this case as where many copies are proposed. There is, however, another plan sometimes followed from which extraordinary results come, namely, the casting from a mould which is made in one piece around the model. This, of course, involves the breaking up of the model, or at least of that plaster cast of the original model upon which the mould has been made; and it also involves the complete and unerring cleaning out of every groove, crease and depression of the mould, which should appear in the casting as a ridge or projection. On account of the extreme difficulty of securing these results the following method is used; the model or its reproduction is completed as to its surface, not with plaster, but with wax, which, however, as it is finally left is hard enough to allow of the mould being made upon it as upon the plaster itself. This mould once completed and set hard and dry, the clay or plaster of the model within is broken up, while the workmen are quite aware that much of the wax remains in the smaller subdivisions of the inner surface of the mould: This is driven out by heat, and the mould thoroughly dried;

inlets called "ingates," and air holes are prepared in the substance of the mould: the melted metal is let in; and the bronze fills the mould, solid and perfect. This process, known as the "lost wax process" (*fonte à cire perdue*) is rarely used in European communities and in recent times, but extraordinary results in the way of surface modelling are possible to it, and a few foundries of the present day undertake to carry it out even on a large scale. The results are sometimes very surprising, and there are bronze vases from Japan, mostly of the eighteenth and the nineteenth centuries, in which the highly elaborated surface ornamentation, partly undercut and all in extraordinary forms of relief, leave the student in doubt how far what he sees is the direct result of casting by the wax process and how far it has been wrought with the tool, carved exactly as if the substance were wood (see Fig. 56).

The great statues of antiquity, the important groups with whose fame ancient history is filled, the immortal, idealized figures which to the ancients must have meant Apollo and Bacchus, were commonly of bronze, the marble statues with which our galleries are filled being very often copies from these bronzes, sometimes of second-rate quality and intended rather for the decoration of gardens and porticos than for the temple, or such other place where the consummate work of art was called for. For bronze statuary and the

BRONZE CASTING

like, as a part of the general subject of sculpture, see Chapter XXIV.



FIG. 56. *Cire perdue* casting. Handles, frogs, and turtles separate

The number of important statues in the great days of Grecian art was indeed enormous, such pieces being numerous in all the important centres of Greek civilization; but under the Roman Imperial dominion the number was vastly greater,

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the old pieces being preserved (for as yet no wasteful and destructive break in the growth of civilization had come upon the antique world) and new ones being constantly added to meet the irresistible demands of the Imperial system. When it is said that there were more statues in Imperial Rome than there were living men moving in her streets we are to think of the hundreds of sculptures which give rise to the saying as consisting in large part of bronze pieces; perhaps we are to think of them as being one-third at least in this more precious material. Of all this vast array, including many thousands of life-size and larger statues, many groups of heroic or colossal size, and an indefinitely larger number of statuettes, figures of animals, and other highly decorative and artistic pieces—of all this vast accumulation of wealth, in which the provincial cities of the empire were second only to Rome, the pieces that remain are so few that with the exception of a single museum Europe may be said to be without them. Disregarding for the moment that one exception, there remain, of larger pieces, the noble Victory of Brescia, the two somewhat less important pieces in the Etruscan Museum at Florence, and the “Praying Boy” at Berlin, whose attitude is uncertain because the arms are modern. Memory of a few other bronze statues is preserved by the heads cut from them, and afterward mounted as busts, like one at Con-

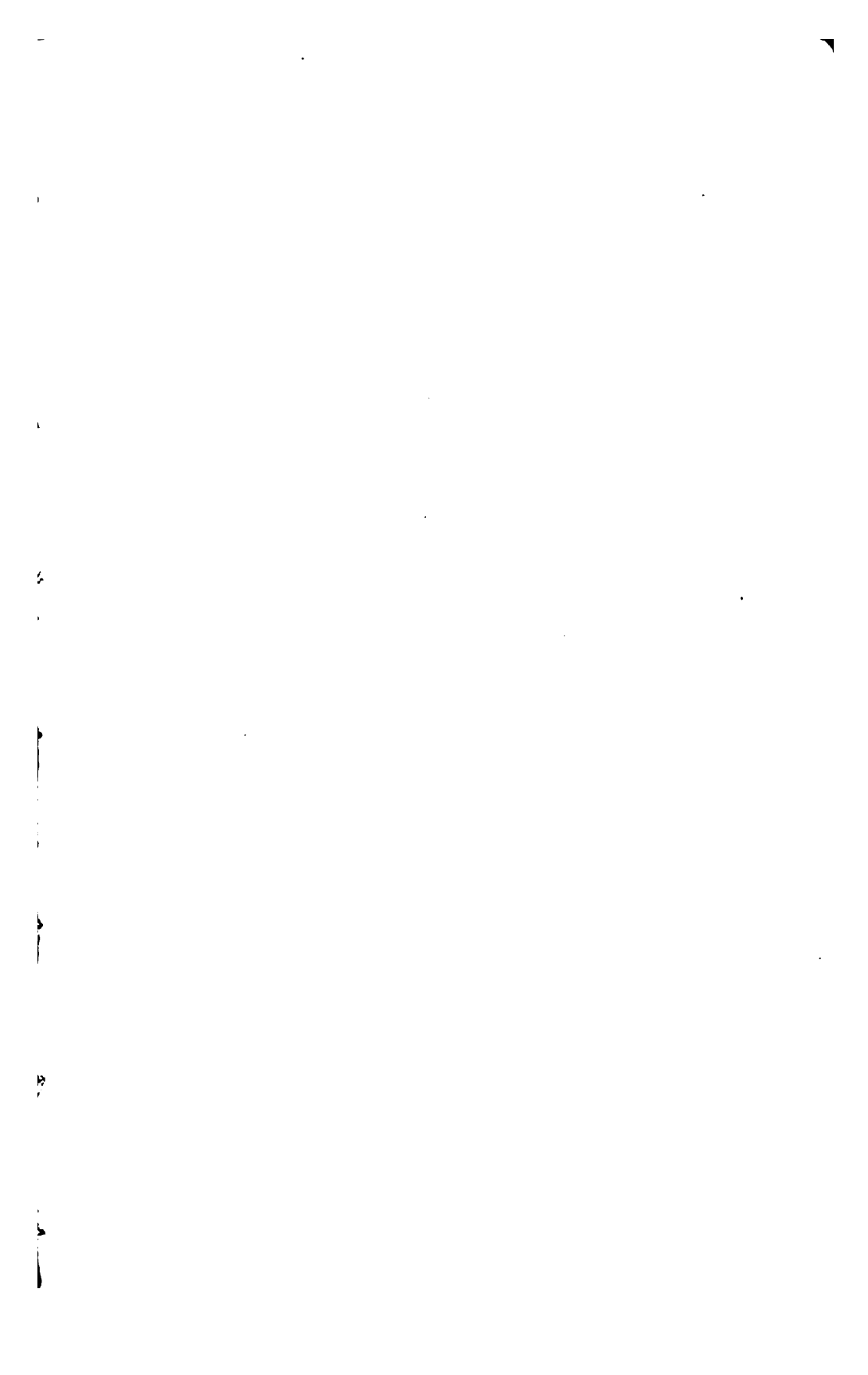




FIG. 57. Bronze Bust, life size, apparently cut from a statue, formerly called "Plato," now, rather, Dionysos. Found in Villa at Herculaneum. Naples, Museo Nazionale

BRONZE IN ANTIQUITY

stantinople, and several at Naples, including the subject of Figure 57. The reason for this rarity is, of course, the intrinsic value of the metal; the bronze statues were melted by the barbarians of the fifth century and turned directly into coins or in other ways put to immediate mercantile use. But the soft rock which covers Herculaneum covered also for seventeen centuries a certain villa just outside of the ancient city, and from this villa have been brought up the bronzes, large and small, which fill a series of three square halls in the Naples Museum. Here are seven portrait statues, some larger than life; eleven ideal statues, as of Muses, divinities, draped dancing maidens of decorative purpose, and eighteen life-size busts: see Figs. 57 and 58. Besides these supremely important pieces there are statuettes by scores, and as the catalogues tell us, with those from the Herculaneum villa are mingled those from Pompeii, where, although no important large works of sculpture were found, many minor works remained and many must still remain in the yet unexplored houses. Thus, the European museums taken together possess perhaps forty large pieces of antique bronze, two hundred or more statuettes or the like, and thousands of ornamental and admirably designed utensils, bowls, pots, kitchen utensils even, into the design of which something decorative, something really effective has been allowed to enter; and much

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the greater part of this wealth has come out of the provincial city of Pompeii, and that one villa at Herculaneum. It is evident, then, that we know only a small, a very small handful out of a vast accumulation. It is probable that a little more excavation at Herculaneum would bring to light more large and important bronzes than are now above ground. The modern world has never used bronze with such freedom; but then the modern world, since it emerged from the poverty and distress of the Middle Ages, has had something else to do than to pursue artistic development. The magnificent decorations of the Mediterranean cities of antiquity can hardly be realized by one who has not spent days upon the spot trying to set up in their ancient standing-places the many hundred pieces of more portable art among the perished buildings of which only ruined fragments recall the former existence. Sociologists tell us that it was one of the reasons for the fall of the Imperial system and of the Roman civilization, one of the reasons why that magnificent entity, the empire of the whole Mediterranean world, passed away and was succeeded by eight hundred years of hideous misery and slow struggling out of the blackest barbarism — the fact that the industry of the empire was not a wealth-producing industry. The employment of great hosts of workmen in rearing the gigantic thermæ, amphitheatres, colonnades, Imperial fora



FIG. 58. Bronze Bust, life size, apparently a portrait, found in Villa at Herculaneum. Naples, Museo Nazionale





THE LOSS OF ANTIQUE ART

and temples with their adjuncts, is to be set down as, from the economic point of view, a waste of the public wealth; all these magnificent works, however precious to the mind of the student of architectural and other fine art, were not in the way of causing a further growth of national or municipal prosperity. So far as they might attract persons from other cities or other lands, well; but this was a mere shifting of the ground. Take these considerations, then, as the one consolation to the world for the absence, since the fourth century, of any such living impulse toward the decoration of cities, and the use for such decoration of the noblest possible works of fine art,—it will be found hard for him who has once learned to love the fine arts in their highest development to feel other than a bitter regret for the unskilful political management of the great empire, which allowed Greco-Roman civilization to be destroyed, and to disappear as fuel burns in a fire, taking with it in its destruction even the apparently indestructible monuments of its greatest prosperity. It has been the business of the last forty years to unlearn the error which former writers, ignoring the monuments themselves and misunderstanding the written texts left us by antiquity, had taught about the art world of Greco-Roman times,—of the years from 500 B. C. to 400 A. D.,—but meanwhile, even as this study has been going on, many of those monuments have

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been destroyed or restored out of recognition ; and although this ruinous double course of change has been partly arrested, we have still to lament the loss in our own time of several of the most important relics of second-century and third-century fine-art.

Of all this splendid art the bronze work was, as has been said, the most important of which we can form any accurate conception. For the paintings of Greece have disappeared so completely that only the poor imitations of them in Pompeian houses and in two or three Roman dwellings serve to give us any idea of the larger and more important of the world-famous works of mural art ; and pottery, important as is that of the Greek lands, does not embody so lofty a system of thought in art as does the metal work. It has always seemed to the writer that not enough attention is paid to the Hall of the Great Bronzes at Naples, for there, more than in any other room in the world, is to be found concentrated a collection of very good classical sculpture and none that is not very good. There is one of the two great bodies of Greco-Roman sculpture as preserved for us. The only place in Europe where one or several closely adjacent rooms can give anything of equal importance is in the two museums at Athens, where the relief sculpture of Greece is to be found. The bronze statues are in Naples, the marble reliefs are in

Athens — that is not a surprising nor an unreasonable result to come of the remoter and of the more immediate past, but it is between these two centres of study that the ardent lover of art should make frequent and rapid journeys.

The work of the artist in bronze is chiefly in the preparation of the original model (see Chapters IV and XXIV). All else is rather the work of the skilled mechanic; except where there is question of coloring the bronze, and this also is mechanical except as the artist has to decide upon the color to be given to his casting, and whether that color shall be uniform or varied with gradations and cloudings. The people of the far East take great pleasure in giving varied and decorative coloring to their bronzes, every piece being individual and designed for itself in this respect: and European artists have enjoyed the coloring of their own productions in the same way, choosing generally the smaller and less important pieces.

It will be noted, then, that the work of the artist and that of the skilled artificer are very closely allied in bronze work, — the distinction being merely the universal one between him who has the artistic thought and him who aids its expression.

Iron has been used in a similar way to bronze, though very rarely. There is great difficulty in obtaining a clean and perfect casting, and the metal is too hard for easy finishing of the surface.

METAL WORK

There are a few important monuments in India ; and the once famous Berlin iron-work, dating from the early years of the nineteenth century, is an instance of what may be done with minute cast-



FIG. 59. Cast-iron medallion. Early nineteenth century

ings made with spécial care and probably under pressure : see Fig. 59.

In all this work done by casting metal, the chief labor and thought of the artist goes into the making of the model upon which the moulds are formed. This process of modelling is considered in Chapter IV. The metal-worker comes

to help only when the moulds themselves have to be made: but then his skilled mechanical eye and hand are needed, together with all the artistic sense that he has gained. And finally, the filing and chasing and polishing which go on in the search for the perfected form in the finished surface, is the most refined sort of metal work.

Metal work done by hammering and subsequent finishing is used where lightness is desirable and thinness admissible — where the metal is precious and to be used sparingly — and where the free handling of the hammer-man appeals to the artist's thought more than does the slow work of the finisher. Thus, if a vase is to be adorned in relief, the substance being a thin plate of silver, the pattern will be raised by the snarling iron¹ and then the vessel will be put together, at least temporarily. The whole interior is then filled with pitch or some such material which can be melted and poured in and which when it hardens does not shrink appreciably. Against this solid though yielding mass the plate may be pressed by the workman without losing its form; and this enables him to use the chasing tool on the relief already in existence, pressing it back here and there, subdividing and giving definition to the pattern, touching up the edges of the leaves, giving in this way character and sharpness to the

¹ *Snarling iron*: The ancient name of the hammer described under Repoussé Work.

design, and in some cases cutting away the metal very decidedly, so that little shavings come off from it much as in the case of engraving. By means of repoussé work, finished afterwards with the chasing tool, are made also decorative plaques in copper and other soft metals and alloys, and also what seems impossible, minute and delicate works in steel. For this purpose the steel has to be softened, which is done by heating it and allowing it to cool slowly, and this perhaps several times before the piece becomes soft enough for the best handling; it is tempered¹ after the work is complete. This work has been done in modern times and with great success, at least as to technical excellence; an artist named Virtue being especially known in connection with large decorative pieces made in this way. The culmination of the artistic work of this kind in the harder metals was in the highly adorned armor of the sixteenth century and the early years of the century following. The famous suit of armor once belonging to Henry II of France, which has been in the Louvre for many years and is exhibited in the Gallery of Apollo, is only one of the many magnificent suits which are known to have existed at this time. These, although few of them have

¹ *Temper* (*v. t.*): to give, especially to a metal, a required degree of hardness. Steel, for instance, may be rapidly hardened by being plunged into cold water while hot, or softened by being allowed to cool slowly. Other liquids may be substituted for water, and these again modify the condition of the metal.

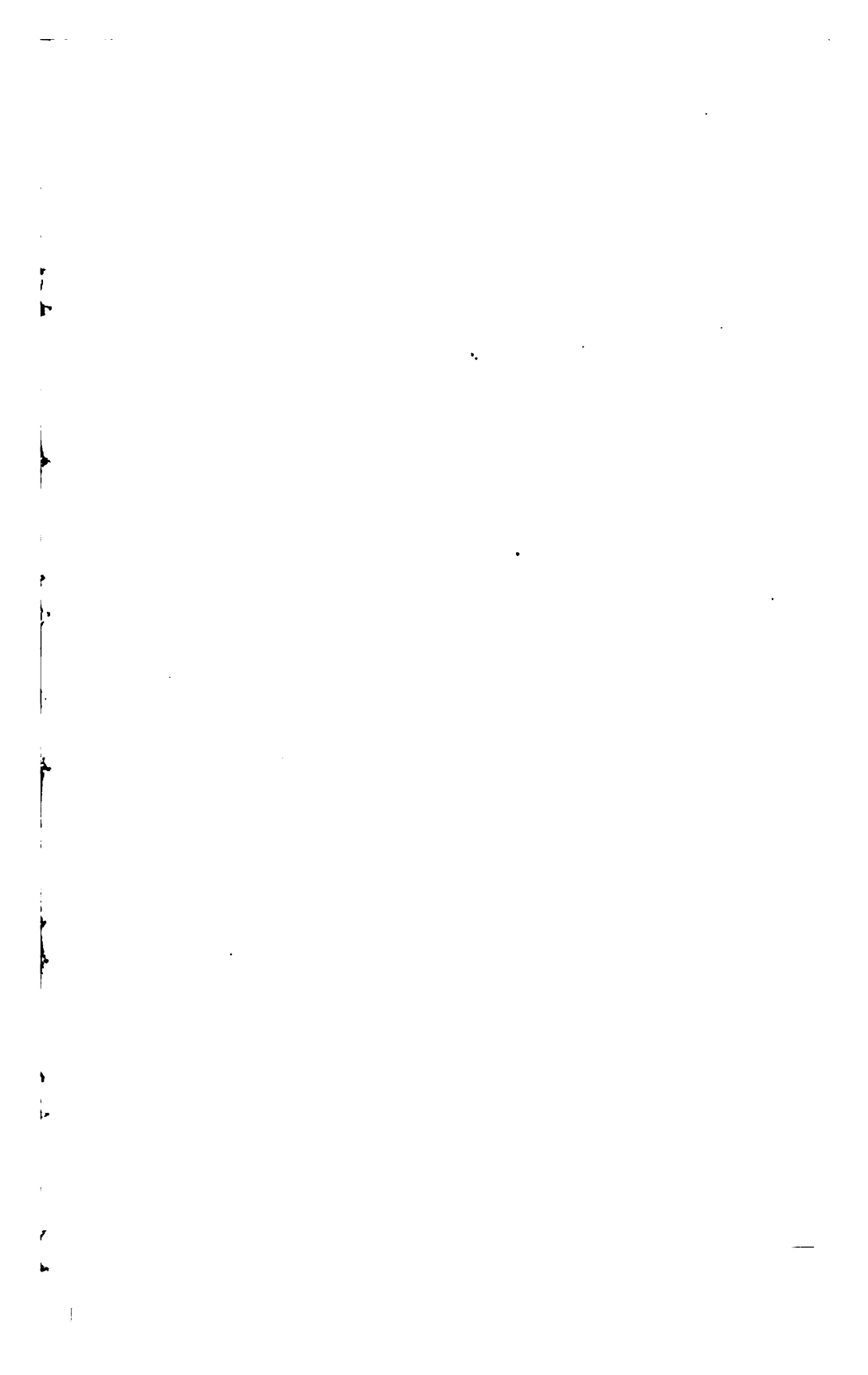




FIG. 60. Wrought Steel Buckler, Italian, sixteenth century : parcel-gilt and dotted with silver ; diameter 22 inches

(From Burlington Fine Arts Club, exhibition of 1900)



been kept together and absolutely intact and complete, can be judged by the separate pieces—morions, armets, shields, vambraces, tasslets, and the like; pieces which are among the chief glories of the Prado at Madrid, the Musée d'Artillerie in the Invalides at Paris, the Gewehr-Museum at Dresden, the Tower Armoury in London, and smaller public and private collections. It is one of the curious phenomena in decorative art—this appearance of the finest pieces of armor at a time when the general abandonment of defensive arms was close at hand. The splendid round buckler of Italian sixteenth-century work, shown in Fig. 60, has its high relief emphasized by gold and silver inlay; but the embossed and delicately chased steel is the chief thought of its maker.

These relief patterns were by far the most effective means of decorating pieces of armor; and the work of the Roman Imperial time may be compared for richness and variety with that of the Renaissance; though the antique pieces which we know are in bronze, and those represented in statuary, as in the statue of Augustus in the Braccio Nuovo of the Vatican were probably of that metal. Engraving with acid or more rarely with the tool, and parcel-gilding are, with mere changes in the general color of larger surfaces, the only other available means of decorating armor. The objects of armor which are

occasionally seen adorned with enamels are, of course, merely pieces of parade and court display. The suit called the armor of Charles IX, also in the Gallery of Apollo, falsely dated by the ascription to that sovereign, is one of the few of this character existing. Obviously no man would wear in war, or even as if he might be going to war, a suit which would lose its adornments at the first hostile blows.

There belong also to our second category all those works in metal which are wrought by the hammer and file without elaborate embossing. The greater number of these are in iron, the nearly pure metal, as distinguished from cast-iron and steel, which are carbonates of iron: and again the greater number of these pieces are made up of bars and rods, forming gratings, railings, and gates, — barriers, fixed and movable. This is blacksmith's work: and blacksmith's work has in past times, included other things than what we call "grilles," nowadays. The single article on wrought iron (*Serrurerie*) from Viollet-le Duc's Dictionary will furnish examples enough of mediæval locks, bolts, and the like, admirably wrought in the true spirit of constructional or realistic design. Later in style than those are the keys shown in Fig. 61, one of which has a cypher wrought in the bow. The growing skill of the locksmith and the increasing use of cast and finished metal, has done away with these methods of work.

WROUGHT IRON

The making of "grilles" is practised still in the old way; a revival of wrought-iron work having been brought about in the middle of the nineteenth century, after a hundred years of decline and indifference. The essential character of design in



FIG. 61. Steel keys, French, seventeenth century

these combinations of bars and strips is almost unique in art as being linear — a matter of thin strips of shade or of light (as the grille is seen against a lighter or darker ground) contrasting with somewhat larger surfaces interposed between them. Fig. 62 shows a design in which parallel lines prevail; Fig. 63 shows one in which the lines constantly meet and separate again. In this latter example, to contradict the excess of thin bars in the chief pattern, the cresting is made

METAL WORK

of sheet iron cut into leaf-forms, and afterwards rolled and bent: but it is not such sheet iron as



FIG. 62. Grille, eighteenth century. Bourges, France

we have in the twentieth century, but hammered-out, hand-wrought material of varying thickness

WROUGHT IRON

and therefore of uneven surface — an essential peculiarity.

The use of the more precious metals in jeweller's work is almost infinitely varied, and consists very



FIG. 63. Grille, fourteenth century. Verona

largely in a combination of the processes already alluded to with other processes, such as soldering, piercing with the saw, and chasing. The setting of precious stones may be disregarded, as it involves nothing more than the wise choice of the place

and surroundings of the stone, while the securing of it to its mount is delicate mechanism and nothing



FIG. 64. Indian bracelet, turquoise side

else. When small plaques of painted enamel have to be inserted, the choice becomes more delicate and the manner of setting more open to question. It is still not the manual art that is concerned, so much as the decision of the superintendent. Enamelling applied directly to the piece is of a different and more refined character as decorative art; and so is the setting of many stones or the stringing of many small pearls, in which cases much decorative effect can be made or marred by the hand-work itself. Fig. 54 (Chapter IX) shows the reverse side of an Indian bracelet of five separate strands. Fig. 64 in the present chapter shows the much less elaborate face which was yet intended as the "show" side, — one hundred and five small turquoise set each in its own chaton.¹ The determining the

¹ *Chaton*: in French, primarily the precious stone with its mount; later, the head or

PERSONAL JEWELRY

size of the stones and the shape and character of the chatons, although everything may be thought to turn upon the original choice of the designer in these regards, is yet to be distinguished from the delicate manual work itself. There is, of



FIG. 65. Russian enameled chain

course, immeasurably greater interest to the student in the rough Russian chain, Fig. 65. In this the metal is of no great value, apparently an alloy; and the decoration, apart from the simple device of two small links between each pair of

central feature of a finger-ring, whether including the stone with its mount or applied to the metal frame alone. In the absence of a familiar term for the metal mount or holder, the old usage may be retained as in the text.

METAL WORK

plaques, consists entirely in the application of unpolished, unground enamel in white, green, and black, with many letters and minute characters of gold. Four small rough pearls are set between the arms of the cross.



FIG. 66. Silver watch, French eighteenth century. The case set with carbuncles and a tortoise-shell medallion

So far as jewelry has much interest for the art student, it is mainly in the way of metal work. The sparkle of a diamond or the glow of a ruby, as well as the delicate color and lustre of the less costly stones — the beautiful veined agates and jaspers — all these concern the artist only so far as they afford natural means of lighting up his design; very much as a landscape painter illuminates his composition of grays and greens by a touch or two of red in the foreground. But the actual modelling and carving of gold or of less expensive metals gives the artist the best chance

GOLD AND SILVER WORK

possible in these smaller pieces of work to show his hand. Fig. 66 gives two watch-cases; the one on the left, a silver box of sixteen sides, the making of which, with perfect fitting of all the sides and angles, and the true adjustment of hinge and clasp, is admitted to be a test piece of work. The making of a box of this elaborate character is a rare achievement. The other watch-case is of gold and simply round, and therefore an easy piece of work to do, so far as the fitting of the parts to one another is concerned: but the pierced ornament, all sawed through and then wrought into shape with the chasing tool and burnisher, and the relief ornament on solid ground worked by the repoussé process and then chased, are of the delicate work of the eighteenth century. In our own time the watch has ceased to be a decorative object—we cannot have our watch-case too plain and smooth; but in the eighteenth century the gentlemen and ladies of the time were not minded to lose so good an opportunity to carry a delicate *bijou* about



FIG. 66 *bis*. Gold outer case of watch.
French eighteenth century

METAL WORK



FIG. 67. Pewter Vase

tive metal work. The almost infinite variety of such decoration forbids more than a mention of it here; but Fig. 67 shows how in not very costly work a pattern in pale gold can be inlaid in the sides of a piece of dull silver — those words “gold” and “silver” being applied to the color or hue only of the surfaces. In fact, the vase is pewter, Chinese work of the eighteenth century A. D., and the inlay is of such yellow metal as the Chinese use where

with them, and the gold case of the time may be compared with the étui and the patch-box shown in Figs. 23 and 24.

The easy methods of changing the surface color of metals and the further facility with which one metal may be encrusted into another (see Chapter XVII) opens to the student another great field in decorative metal work.



FIG. 68.
Persian two-edged Sword

an European would use latten. In like manner, the Persian two-edged sword, Fig. 68, a very rough and careless piece, is adorned, not by damascening (for which see Chapter XVII), but by a relief pattern slightly raised above the background, which has been lowered by acid; the pattern being then gilded with a slight and now disappearing film of gold leaf. There is, of course, no end to the decorative effects which may be produced when the different changing and beautifully graded hues of the many metals are skilfully handled in combination. The beautiful work of the Japanese in the eighteenth and nineteenth centuries of our era combines higher and more varied relief with the contrast of color; as where dark gray bronze, silvery gray *shibuichi*, dull red copper, bluish-black *shakudo*, silver and gold are wrought with delicate sculpture into one composition.

Chapter Eleven

LEATHER WORK

THE decorative arts which depend upon the employment of leather are few and of small comparative importance. The fact that one form of these arts, modern book-binding, is associated in the mind with the enormously important subject of fine books, old and new, gives it extrinsic value; but it is not one of the most brilliant of the decorative arts in its possibilities when considered by itself. Here, as in some other industrial arts, the material has in itself a great part of the charm. The even surface of fine leather such as the old binders could obtain, though it is unknown nowadays, — and even the surface of leather still obtainable, such as vellum and the morocco which on rare occasions are seen in late nineteenth-century work, counts for much in the general charm of a piece of book-binding. He is a wise designer who knows how to utilize this charm of the material to the utmost. In this way, the morocco bindings of the eighteenth century, in which the armorial bearings of the owner form

BEAUTY OF THE MATERIAL

the only deliberately added ornament, (see Fig. 69) these being stamped in gold upon the broad cover, are found by many students as beautiful as



FIG. 69. Binding, dark blue Morocco, with the armorial bearings and orders of The Great Dauphin, Son of Louis XIV, died 1711

(Collection of E. F. Bonaventure)

the far more elaborate pieces of work which we know by the names, sometimes of the binders who are thought to have introduced the pattern in question, sometimes of the wealthy owners of books for whom such bindings were made. The Grolier bindings, named from the treasurer

of Francis I, and the Maioli bindings named in like manner from an Italian bibliophile of the sixteenth century, are characterized by an elaborate interwoven pattern, a strap ornament carried in interlaced and involved curves all over the surface, the width of the band being inlaid or painted of a different color from the surrounding leather, and the boundaries outlined with gold; see what is said in Chapter XVII of leather as an inlay. Other rich binding of the same period is less well known. Fig. 70 is a book which belonged to Catherine de Médicis, queen of Henri II of France. Everything is in it that leather work allows except *relief* which is rarely used: and the notable thing is that inlaid patterns and gold scroll-work, however effective, would be much more valuable as design if in another material. Scrolls and anthemions¹ may be equally beautiful and far more varied in wood-work, for instance (see Chapter XVII), while the beauty of the leather is partly lost.

This matter of abstract patterns is so singularly important that it is impossible to consider it too often in connection with the different arts in which it plays an important part. In Chapters XII and XIII the effect of lace lying upon the

¹ *Anthemion*: A pattern or unit of design, consisting of several radiating leaves, flower-stems, or the like. Persian and East Indian art combines flowers and leaves in a kind of bouquet, often rising from a vase. Greek carved ornament includes the so-called honeysuckle. These are the extremes of rich and simple anthemions.

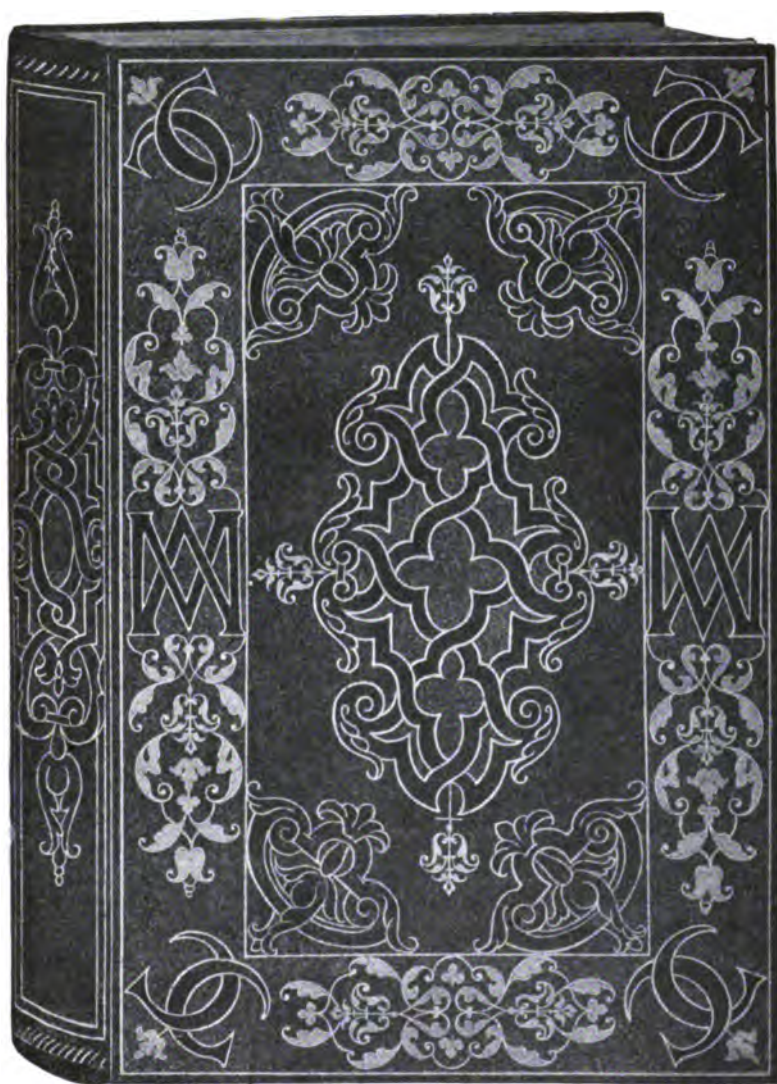


FIG. 70. Cover of book printed in 1596 : from the library of
Catherine de Médicis

(Histoire de la Bibliophilie)

DECORATION BY FLAT PATTERNS

material of a garment is compared with the effect of different kinds of inlay; mosaic (Chapter XVIII), calligraphy (Chapter XXII), mural painting in flat work (Chapter XX), wall papers, tapa and the like (Chapter XXIII), and the primitive arts described in Chapter II, are all concerned with this matter of pattern. And it is to be noted that the great figure painters of the past times — of the fifteenth and sixteenth centuries — in the North and in the South alike, all cared so much for the flat pattern that it is to this day a wonder to all who study Frans Hals or Paul Veronese that so much time could be spent upon pattern drawing in connection with costume. Therefore it is that while we are enjoying the beauty, the pleasant feel, the attractive aspect of a beautiful book-cover, it is well to remember how superior may be, in other departments, the production of fine and elaborate design. The charm of book-binding must always be largely in an appropriate simplicity and in the judicious putting in of a few well-chosen ornaments. The reader is reminded of what is said above of the use of heraldic bearings in this way, and may note that heraldry, which is considered in Chapter XX as a decorative art of small compass and slight value, has its best use in such simple ornamentation as book-covers may receive.

A very different style is that often associated with the name of Clovis Eve, work which is dis-

LEATHER WORK

tinctive of the seventeenth century, where the decoration on the morocco surface is confined to the combining of indefinite numbers of small gold spots producing scroll patterns. As a general thing it may be noted that the smaller the tool by which the impressed pattern in blind tooling¹ or in gold is made, the more effective the design: and yet the tooling with minute points associated with the name of Le Gascon, another seventeenth-century artist, is not in itself capable of as much as is the bolder work of the Eves. Either system allows the leather to show to its full value: and we are not to forget that gold is the best of all harmonizers; the greatest help possible to the subdued glow of the main surface.

The student of book-binding should beware of tooling where it is evident that a flower or a sprig of two or three leaves is put on by a single impression of a larger tool. The reason of this is not far to seek; not only is the design sure to be more fluent, more at the command of the workman in the case of the small tool, which must be applied very often to the surface to produce a pattern, and the resulting effect far less rigid, but there is also the greatest danger that the finisher will fail to understand his large tool perfectly, and will set his sprigs at awkward angles to the main stem or in some similar way misuse

¹ *Blind Tooling*: Decoration by means of impressions made by heated tools without gilding, and usually without added color.

SMALL AND LARGE TOOLS

them. It is for this reason that the term *aux petits fers* (with small tools) is considered as expressive of elaborate and usually interesting gold

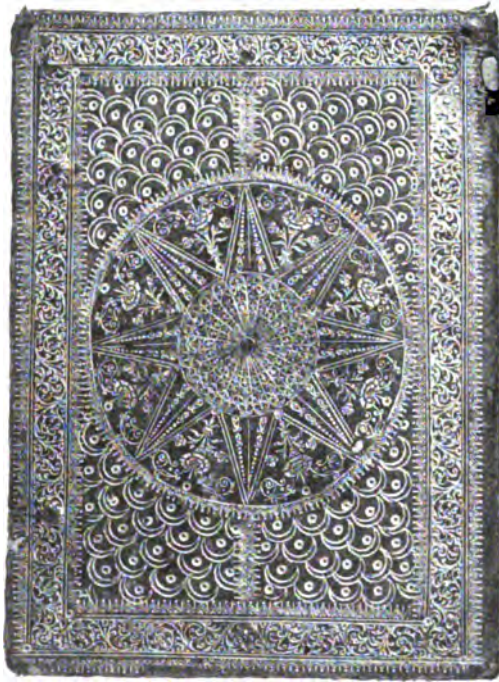


FIG. 71. Binding of a manuscript Diploma of
Bologna University dated 1650

ornamentation. Fig. 71 is a very rough and carelessly wrought piece of work, the binding of a manuscript diploma (see Fig. 177) but it is attractive because of its very simplicity, the unconsciously swift and off-hand work of the skilled

LEATHER WORK

workman. The ruddy brown of the leather forms the background except in the triangles between



FIG. 72. Binding in red morocco, "Office de la Semaine Sainte," Paris, 1691. The Fleurs-de-lis and the crowned LL. mark it as belonging to one of the royal châteaux

the points of the star, and the broad band of the border: those are painted black. Fig. 72 is the binding of a book of devotion, of the time of Louis XIV, with the crowned L of the king's

own library arranged in a *semée* to adorn the red morocco cover.

The lining of the covers of books is interesting. For this the French term *doublure* is largely used. It is very common to use a leather for the lining quite different in color from that on the outside, and to carry out the contrast by making the gold ornamentation very different.

The application of these gold lines is very simple; pure gold leaf is used, gilders' leaf of the finest quality, and this adheres to the surface of the leather in the most permanent way after it has been once set firmly into its place by heat and by pressure. The pressure required is not greater than that which the workman applies with ease, and the heat not greater than that which is held by the brass or steel tool. When tooling is done without gold it is usually called blind tooling, but this is hardly to be extended to the making of elaborate patterns in bas-relief and in intaglio, as on the pigskin bindings of the sixteenth-century volumes. Those stamped bindings are the less important to our present subject that nearly all the art shown in them consists in the engraving in relief of the large stamps; (see also Chapters XIX and XXI).

Leather work can be used for the adornment of boxes, *étuis*¹ of different sorts and other use-

¹ *Étui*: A small case, the French term being used for any box of a somewhat finished character and intended as a permanent receptacle

ful objects. The ornamentation may be of the same character as that in book-binding, with gold points or gold lines or bands worked by the roulette.¹

Outside of the more delicate appliances used by the bookbinder, and by the older workmen in boxes and sheaths, there is a great deal of leather work whose ornamentation is not very aggressive, as it is obtained by simple depressions, and therefore low reliefs used in connection with the depressions, all made in the leather by boiling it first and impressing it while it is soft. This work known as *cuir bouilli*, or "boiled leather," or in old English books as curbully and the like, was used as early as the later armor-wearing days, the ceremonious epoch of the fifteenth and sixteenth centuries, when display at tilt and tourney was as important at least as the use of the war-armor in the stricken field. The crests with which the helmets of tilting knights were adorned, sometimes fifteen or twenty inches high and modelled into shapes of strange animals and even of humanity, were made of cuir bouilli as

for a delicate object, as opera-glasses or the like, or for many small objects. Thus, the housewife cases of the eighteenth century with silver-mounted scissors, needle-boxes and the like, are often made of thin metal work, gold or silver ornamented with repoussé designs, and chased, engraved, or enamelled, or of fine leather work; and these are known in collectors' parlance as *étuis*, in almost all cases.

¹ *Roulette*: A little wheel, especially the tool used to mark or cut by means of a revolving wheel. That in use for book-bindings works exactly as the wheel sometimes used to decorate a pie-crust.

WORK IN BOILED LEATHER

an alternative to light and thin repoussé work in copper, the object being to get great durability with all possible lightness. Few of these have been preserved. They are known to us chiefly by the miniatures in the later manuscripts of the Middle Ages. The museums of Europe contain some such pieces, however, as well as some leather-covered bucklers of the sixteenth century, trunk mails and valises for travelling, and even pieces of saddlery and of personal wear, such as jackboots; in all of which the system of ornament is nearly the same, that is to say, bas-reliefs on a sunken ground such as could be produced by putting strong and continued pressure on softened leather (see Fig. 73). The white, or rather yellowish gray, pigskin covers of the large folio volumes of the time when printing was young, contained very elaborate patterns which, however, from their very slight relief and their uniformity of color, are not very showy: they have been mentioned above.

Painting upon leather must be mentioned here, although it belongs to the subject treated in Chapters XX and XXV. The combination of mere painting with tooling, such as can only be done in leather, and the peculiar gloss resulting from flat painting on vellum, parchment, or calf, make of this kind of work a somewhat specialized art. Fig. 74 is the back and upper cover of a German service book printed at Lübeck in 1791.

LEATHER WORK

The flowers are outlined in gold and filled in with flat painting of green and red; the scroll patterns of the borders and the kneeling figures



FIG. 73. Leather Bottle arranged to be hung to a strap over the shoulder

("La Collection Spitzer")

are entirely in gold and generally on a red painted ground: the edges of the book are elaborately stamped with rude scrolls and with the adjuration, *Lobe den Herrn*, "Praise the Lord," framed by some more trivial scroll-work.

PAINTING UPON LEATHER

Painting upon leather is carried much farther in connection with stamping and gilding, in the preparation of the remarkable wall-hangings of the seventeenth century, reproduced, or restudied,



FIG. 74. Binding, velum, painted in vivid colors and with gilding applied on the smooth surface, without impression

in the nineteenth, and still (1904) in process of improvement at the hands of a very few skilled workmen. The Japanese have used the same process, and again have imitated in tough paper their own leather-work: but the few very fine screens of Japan colored and lacquered leather that have been shown the Western world are

LEATHER WORK

worthy of much study. Another decorative leather comes from the far East: it is soft and not lustrous in surface, delicately colored in simple patterns of brown and gray and dull red, unlike anything known to the arts of Europe.

Modern industry directed toward the production of decorative pieces made at high cost has resulted in leather work of an extraordinary refinement produced by the use of skins of animals never used by and hardly known to the sixteenth-century artists. The skins of goats, of different species of alligators, lizards, serpents, and the like, are used with their natural veining and inequalities of surface, and the old device of producing an artificial grain by sinking into the skin, temporarily, little pellets or grains such as the hard seeds of certain plants, has given to the modern leather worker an indefinite number of surfaces having a singular variety of texture and of delicate tinting. Such leather work depends for its charm usually upon the skin itself and the high polish given to it, rarely upon the applied ornamentation or the beauty of form. In this as in other things the modern European designer knows his own inability to produce patterns. He limits himself to developing the cloudings and streakings and veinings in the glossy surface of leather, as to the production of them in the textile fabric, or on the stuccoed wall of an apartment.

Chapter Twelve

TEXTILE ART¹

THE simplest textiles are often those which show the most markedly their characteristic design. A piece of straight-forward weaving with thread of different colors lying in two directions, as in coarse cotton cloth of simple designs in plaids, such as are hand-woven in Greece and in the Mohammedan East, and in such inexpensive stuffs as gingham, together with those soft fabrics woven of little bundles of fine threads, such as are called "basket weaves," gives the best instances of pure textile design. The resulting patterns are generally admired and enjoyed. They have always been imitated on painted and printed surfaces and by means of inlay; even carving in low relief takes the woven texture for its subject: every one loves the effect of in and out, first over and then underneath. Weaves as simple as these have

¹ *Textile Art*: That which has to do with weaving, plaiting, or otherwise combining threads, fibres, cords, and the like, so as to produce a fabric, usually flexible, and very thin in comparison with its length and breadth. The number of different processes is very great and their distinctive peculiarities marked.

come down to us from remote antiquity with other artistic work of Egypt, and again they come from mountain valleys and tropical islands; but with them come the more elaborate patterns, for it seems that the loom invites human ingenuity and rewards it. Block-patterns, checquers, and plaids; zigzags and broken triangles; stripes with stripes across them or zigzags within them — these are sometimes of the Nile country itself, or, as often, of Syrian origin. Others have been found in tombs of remote South America; and, again, admirable specimens are obtained from the islands of the Pacific (see Fig. 5). With the slight change involved in twilled weaving, where each thread of the weft¹ goes over and then under two or three or more warp² threads, a more spirited effect is produced; it is in this way that are woven striped and plaided linen cloths, and, also, Scottish tartans with simple blocks of pure color alternating with patches of mingled hue. Weaving with specially twisted threads gives us crape, than which no textile is more interesting. Fine string-work, “macramé” and other, may be con-

¹ *Weft*: In weaving, the threads which cross the web, from selvage to selvage; called also the woof.

² *Warp*: In weaving, the threads or cords that run in the direction of the length of the fabric and form its principal foundation. In some weaves these are of the same material as the woof or cross-threads, as when a piece of cotton cloth is entirely of the same material lengthwise and crosswise. In other cases, the warp is composed of strong cords, upon which the threads which form the surfaces of the stuff are supported and by which they are concealed.

THE NATURE OF A WOVEN FABRIC

sidered as a textile ; and we cannot deny the same place in our classification to plaiting, like that in colored ribbons, which is recorded as the crowning achievement of the favorites of Henri II ; and if this is to be accepted, then knotting and the making of complicated fringes come also within the limits of our subject, and knitting and netting and tatting and crochet-work as well. The distinction seems to be here — that where the threads are strongly tied at their intersections the work is not weaving, but netting. The woven fabric gives us generally a solid surface — a fabric through which light will not pass. Some of these seemingly trivial occupations may result in very artistic combinations indeed, as may be seen when an ingenious sailor-man turns his thoughts to learning all the plaits and all the knots his messmates know, and adding more of his own devising. Elaborations of this sort must have been common in the far North of Europe, before the carved straps and knots and interlacings in relief were carved upon the Norwegian door-posts. As for the far-carried weaves imitated in painted tiles and in stamped plaster, in Cairo and Damascus, Cordova and Granada, one fancies that they were devised for the very purpose of wall-decoration, put together especially to serve as “working models.”

With these simpler weaves and plaits are to be named bobbin lace, that in which the threads are

twisted and woven, plaited and tied together, so as to make patterns of rather solid surface alternating with open spaces; and even so much of needle-point lace as can be separated from embroidery, the needle being used merely to lead the threads which go to make up a woven ground, whether that of the general surface of the piece (the fond or champ) or that of a leaf or scroll (the toile). In fact, no combination of threads or strings to make a fabric is so simple that it is not susceptible of artistic treatment; and, as stated at the beginning of this chapter, these more obvious ways of work lead more often to spontaneous design, the true thought of the workman, than do the splendid fabrics; for those require fully worked-out drawings made long beforehand. The hand and the eye of the operative may be as originally artistic, as unswayed by outside influences, as that of the carver or painter may be; while yet the process of such weaving is not strictly an artistic process, like those named in Part I of this work, because the driving of the woof through the threads of the warp is mechanical, and the art-inspiration works outside of and apart from the mechanical act, deciding beforehand how many threads shall be of this color and of that. The artistic thought in weaving is not expressed immediately (with no "mediation"), as it is in modelling and carving, — it is too deliberate for that; the weaver is told or has told himself just what he has

to do. The distinction is rather too subtle to be maintained in all cases, but it may be noted that the maker of bobbin lace, even of an elaborate pattern, makes it rather in the way of pursuing a long-studied and well-learned industry, repeating one of several patterns already familiar, because it is so that the educated fingers have learned to move. These arts of the skilled operative are often baffling to the inquirer; and yet the inquiry is self-rewarding. We need to know when the workman is also the artist: the Venetian girl sitting out of doors in the little *campo* twirling her bobbins, or the great Robusti overhead in his workroom, plying the ready, the practised, the infallible brush. And therefore it must always be noted, whenever there has been used a fully drawn-out design and its directions minutely followed; because here there comes in that interference of another mind which indeed does not prevent artistic work by the subordinate—which may even advance and improve such work—and yet changes it greatly as to all its conditions.

It is in this last-named way that the more pretentious work of the textile industry is always done. It has to be drawn out beforehand. Even the Indian weaver of rugs with his simple loom set up under a tree, and his legs in a little pit dug for the purpose, while he sits upon a thin cushion laid upon the ground,—even he is using for his constant guidance colored drawings that have come to

him, perhaps, from his fathers. He may change the patterns a little, but he follows them in the main. It will be seen, then, how closely this art resembles those arts of general decoration dealt with in Part III of this work. Given the design made apart and in advance, and the work of the weaver of brocades, velvets, cloths of gold and silver, and the simply patterned silks, and furniture-worsted of the nineteenth century is, all of it, the result of highly skilled mechanical work directed by the previously ordered thought of one not necessarily engaged in the labor. The magnificent tapestries of past and present epochs are most faithfully copied from cartoons; and the making of those cartoons is always the work of a very highly trained artist, a painter, who may not understand enough of the process of making the tapestry to produce an inch of it himself. Therefore, while we continue to class weaving as a manual art, it is, when looked at from the decorative side, less natural and simple than some others.

That merely mechanical work is, however, of the very highest and most admirable sort. The men who do fine work at the Gobelins, in Paris, are commonly said to need fifteen years' training before they undertake an elaborate composition; and although much of the minute care used for tapestry weaving has to do with the wholly unfit and undesirable copying of paintings never intended for tapestry designs, this is an avoidable abuse;

THE MAKING OF VELVET

and skill and care of an equal though different quality are needed for pieces of purely textile make. The preparation of a noble design in cut velvet, the making of the loops, the cutting of the loops, the shaving and singeing of the pile, are all mechanical processes, such as are carried on under the direction of a general master of the works, — no one of them, nor all of them together is work done as artist's work, — but the result is so splendid, and the mechanism, human and of the machine, is so refined, that a fine-art process of a special kind seems to exist here and to need qualification (see Chapter XXVII). It may be noted, however, that some engraving is very similar in its aims to the more elaborate kinds of textile work. The engraver copying a picture (see Chapter XIX) is translating from color into black and white, and from a smooth gradation into a combination of lines which imitate gradation (see Chapters VII and XXV). In like manner the weaver or tapestry-worker may be translating from the same smooth gradation of pigments mixed with oil into a combination of juxtaposed tufts or knots or crossing threads which imitate gradation. But such translation is really an artistic process; because the engraver or the weaver has to substitute a series of artistic thoughts of his own for the artistic thought of the original.

Still, we are not to lose sight of the beauty of the web itself. This cannot be called an artistic

TEXTILE ART

virtue; it is inherent in the fabric, just as the bookbinder's leather is beautiful as the result of a very different mechanical process. When this web is so fine, so "sheer," that the woven nature of the fabric disappears in a general translucency, the thread itself seeming to be transparent, as in the finest of India muslins, a new beauty arises, but one which is not especially characteristic of textile fabrics. Such muslins are now no longer made in India, because the factory-made white cottons of English manufacture have simply driven the native weavers into other occupations or to starvation; but the beauty and characteristic charm of the thing, the culmination of skill in the making of such fabrics is not exactly essential to its character as a textile; that charm is shared by other translucent materials, natural and artificial. On the other hand, many stuffs which have no pretensions to artistic character are beautiful to the eye as they are agreeable to the touch — as partly explained above. A case-full of strong linen with even threads is attractive to the eye; all the simple diapers and twills are still more interesting; a display of towels and one of table-cloths may be fascinating: it takes all the harsh bad-taste of the novelty-seeking manufacturer to repel the lover of textiles.

A singular modification of this simple weaving is introduced when a ribbed surface is desired, which ribbed surface is obtained by making the

MODIFICATIONS OF WEAVING

threads running one way of the stuff very stout, or else by grouping them in bundles of fine fibres which pack closely together. Each stout thread or bundle of fibres, when entirely covered by the finer threads laid in close sequence, once the weaving is done, assumes the appearance of a rib, that term being forced a little to express this meaning. The threads which show are generally those of the warp; the woof not showing at all except as its color may slightly modify the effect given by the visible warp-threads. Nothing is easier than to diversify the color of these ribbed fabrics by running the visible warp threads in different colors, crossing the ribs in different lines, forming stripes; and again by diversifying these so that a blue line made by two or three fine threads may break and alternate, each stripe covering every alternate or every third rib. In this way a broad stripe may be checked or wrought into a fret or key pattern.

Damask linen (a very different thing from damask) is produced by handling the threads in such a way that one whole unit of the pattern consists of threads lying in one direction and close together, giving a glossy effect when the light strikes it and is reflected from it at one angle, thus contrasted with the background in which the principal threads lie in the opposite way, and tell as a glossy surface only when the direction of the light is changed. This gives the effect which we describe as White on White, that is to say, the

two surfaces are equally white (if that is the color of the bleached linen) but as they reflect the light in different ways according to the position of the eye the pattern will appear brilliant upon a dusky ground, or dusky upon a bright ground. The fact that the two sides of the linen generally show the same pattern in reverse is an illustration of the way in which the work is done in its simplest manner of proceeding. There is nothing to prevent the damask weave being backed by a strong secondary or lining fabric beneath, which would of course conceal the "wrong" side of the stuff.

The modifications of the process of weaving on a loom which are requisite when the pattern is to be at all elaborate are so very great and peculiar that they could hardly be explained without a series of diagrams. The pattern shown in Fig. 75 will serve to illustrate this. It will be observed that the figures are arranged in straight horizontal lines, the term "horizontal" being used here for the breadth of the cloth, and the term "vertical" for its length. A blue thread which has to cross the web will come into sight on the surface of the stuff only once in each one of these figures, forming then a blue spot, while other spots of different tints unite with it to form the cloud, the sacred pearl or its surrounding flames, or any scale or claw of the dragon. These reappearances are, however, at regular intervals; and it will be seen that in this case not one half of the cords of the warp, but

THE WEAVING OF COLORED PATTERNS

only a certain definite number of them, in this case seven, come to the front or to the top with one movement of the movable frame, and that the blue shuttle flying through, leaves all of its thread



FIG. 75. Japanese brocade, dragons, clouds, and kylins in horizontal bands

below the surface except where it passes these seven raised cords; that is to say, there are perhaps fifteen inches of the blue thread left out of sight, hanging loose behind the fabric, for every inch that shows in the pattern. The general effect of this piece of silk is very grave and calm, a score of

TEXTILE ART

colors are combined to give a harmony like that of some few French landscape painters of 1870 to 1900, men who used bright colors to secure a



FIG. 76. Japanese Brocade woven with paper strips gilded on one side. Pomegranates and Persian Flowers

grave effect. In Fig. 76 there is used a large proportionate amount of tough paper in very narrow strips, woven in as the silk thread is woven in, this paper being white on the reverse side and gilded

THE WEAVING OF COLORED PATTERNS

where it shows on the face. The great pomegranates, the strange, unreal flowers of Persian look, and the whole pattern, indeed, are supported by, and, as it were, drawn in bright gold—for the metallic lustre of this gilded paper seems never to lose its brilliancy. Silver-gilt thread (wire) loses its protective gilding and becomes tarnished with a singularly beautiful result; but he who deals with the Oriental paper-inlaid brocades, must count upon a gold which will be always gold—the colors of the silk may fade, but the metallic outline holds its own. In the piece before us, the whole background is of a subdued scarlet, slightly modified by the slow fading of the hue, which seems to tend toward a brownish orange. That color of which the largest total surface appears in the pattern is a green which has been rather brilliant, but is constantly broken by the intermingling with it of threads now pink, now deep and sombre blue, now violet, now bluish white. As in Fig. 75, the horizontal rows of flowers in the same pattern are totally different in color effect: thus, the top row of pomegranates is, in the original, orange-colored as to the heart, with the principal surrounding leafage bright green and deep blue; while the next repetition of the same flower has the fruit itself of the same colors distributed in the same way, while the leafage around is totally different,—pale where the other was dark, grave and quiet where the other was in sharp contrast. This

TEXTILE ART

surface and irregular absorption of light redeems the whole. It may be thought strange, in the case of velvets and similar fabrics, that a similar clouding and undetermined gradation of hue and tint has not been employed more frequently, for it

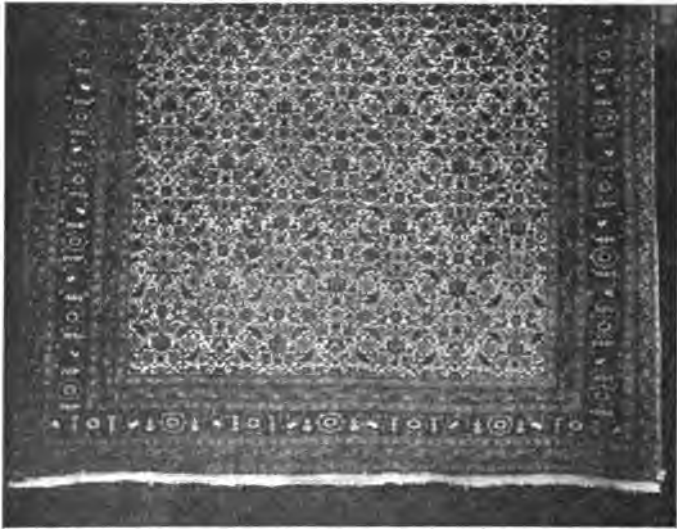


FIG. 77. Oriental carpet, mixed pattern
(Marquand Collection)

would seem to be a natural way to give an added charm to the material. Plain velvet requires the most refined care in the weaving, so that the loops may be exactly of the same height, and the cutting or shearing must be done with equal care. There is a still greater elaboration of the material in what is called "raised" velvet, a fabric in which only the pattern, or a part of the pattern, is in velvet

FABRICS WITH THE PATTERN IN PILE

pile, the rest of the surface being left smooth, like satin or other silk fabric. There is also the still more elaborate pile-upon-pile velvet, where a certain pattern is woven with longer loops and is cut



FIG. 78. Part of chasuble of Genoa velvet

by itself, while the background is woven with shorter loops and again is cut by itself, so that a deep velvet pile is relieved upon a low or short velvet pile which may also be of a different color. Fig. 78 shows a piece of Genoa velvet of the seventeenth century forming part of a chasuble;

the background is of nearly white silk, with that ribbed surface which is made by fine threads in raised loops enclosing a cord; but the surface is lustrous and the ridges even add to its brilliancy. The pattern shown in the paler tint is of green silk, also in loops which rise a little higher than the white ridges of the background. The darkest part of the pattern is of deep green velvet pile; but it is evident that this dark green silk was woven in just such loops as those of the lighter pattern, which loops were afterwards cut or shaved to make the velvety surface. Velvets are made now in Venice, in close imitation of those of the seventeenth century, it must be allowed, in which fabrics the background is plain smooth silk, or silk with a very slight pattern of points and ridges, perhaps in uniform color, perhaps with monochromatic flowering or chequer, with a pattern upon this in short velvet pile, and upon this again a pattern in longer pile, these velvet parts being of two, three, or more colors. Such elaborate figured velvet as this costs from sixty to one hundred lire a yard when of the usual width, three quarters of a yard or thereabout; but nothing made in any quantity and for general sale in our modern epoch is of greater beauty and of more satisfactory design.

Other materials than threads of naturally fibrous substance enter into weaving, and that very largely in the more ornamental fabrics. Paper, gilded and

FABRICS PARTLY OF METALLIC SURFACE

cut into narrow strips, has been mentioned above ; but paper of brown, gray, or yellow color also occurs. Gold thread, which is usually thin silver



FIG. 79. Modern gold and silver brocade

wire gilded, or rather an originally stout gilded silver wire which has been pulled out, both silver and gold together, to a very fine thread, is used in weaving what is known as "gold cloth" or gold and silver brocade, and this again is modified by

the introduction into some stuffs of very narrow, flat strips of gilded metal, which keep their color and lustre even better than the gilded silver wire, though not so perfectly as paper. Fig. 79 is a



FIG. 80. Old Venice gold brocade

piece of stuff of which the background is ribbed white silk with pieces of flat silver foil introduced into it, producing a lustrous silvery ground. The small flowers are in colored silk of four hues. The larger flowers are entirely in gold, nearly the whole being of gold thread of round section, but

CLOTH OF GOLD AND GOLD BROCADE

with the more brilliant parts at the opening of the blossoms made up of flat strips of gilded metal which give a wonderful play of light. This piece is of modern Italian manufacture, costing about three hundred lire the yard of the usual narrow width. Fig. 80 is a part of an altar frontal of Venetian brocade, probably of the sixteenth century. The background and the pale, less visible pattern are in two shades of yellowish brown, pale, or now much faded, and the strong and prominent pattern is entirely in "gold thread" of which the gilding has largely disappeared, leaving the silver to tarnish; but this metal filament has been wound upon a yellow silk of stronger hue than any part of the background, and in this way an element of color intensifies and warms the metallic look of the surface. The piece has gained rather than lost by its misfortunes — such is the kindly way in which time deals with fine designs.

The charm which textile fabrics have for the lover of color and of color design never grows less powerful, for the quality of the material and its surface, its pliability also, and capability of being arranged in folds, the exquisite effect of elaborate patterns, not flat as when printed upon wall-paper, but modified by the constant gradation of the slight irregularities caused by the weave — all of these peculiarities together make an important piece of decorative brocade or velvet one of the most fascinating things that a lover of ornamental

art can possibly handle, while simpler weaves are as attractive, though they may demand less study. The modification of the surface of stuff by embroidery, treated in the next chapter, is a beautiful art by itself, and one to be considered quite apart from the beauty which is essential to the textile fabric; and it may be that the true lover of textiles will never care quite as much for embroidery, no matter how splendid and refined its results may be. This will be because of that very formality — of those very limitations which have been alluded to above. The free hand of the needle-woman is somehow less impressive in what it achieves than the set purpose of the weaver.

Fig. 81 shows a piece of silk in which the weaving alone has produced some effects very like those for which we look to embroidery. The surfaces of the darkest shade are green silk in very fine threads and of a considerable gradation of color, passing through perhaps a dozen separate dyes; and all this silk is *broché* on the surface in such a way that the fine threads hang or project very loosely. Where the background color separates the patches of green, marking off the petals of the flower, the green silk threads go out of sight in the weave exactly as they do in the larger patches of background, and there they are held fast; but each loop of green silk is so loose that a stout bodkin could be run behind it at any point, and without using force.

PECULIAR AND UNUSUAL WEAVES

Another and a very different kind of weave has been used in the piece shown in Fig. 82; a process not known in Europe. The background of uniform blue is separate from the pattern of white



FIG. 81. Part of chasuble, green silk

and different greens, except for the threads of the warp. A very slight effort will pull the two stuffs apart, at the outline of any leaf or petal, enough "to show daylight" through the fabric. This process is used for very splendid materials woven in plain, strong, primary colors beautifully combined; but the writer has never seen gold or

silver, either in threads or strips, introduced into the fabric.

Carpet weaving has attracted so much attention in connection with the make of Oriental rugs



FIG. 82. Part of Chinese gown, blue ground

that the principles of the fabrication are pretty well understood. The workmen who produce the finest pieces are those who have the simplest, or very simple, machines, those who inhabit a warm climate like the northern provinces of India,

THE WEAVING OF CARPETS

working out of doors ; while the Persian frames are hardly more finished or more elaborate than those of the Indians. It is to be admitted, however, that only small rugs are producible by these most simple appliances : and that very large Persian rugs of fine old fabrication show all the signs of having been woven slowly, with great deliberation in the handling of the design, and by means of specially built looms. They are of course very costly ; and yet have generally less charm for the student of decorative art than the smaller, fortunately more common, weaves. The attempt of the British government in India to have carpet weaving done in the jails of that country has resulted in the preservation and reproduction of good old patterns, and in providing Western markets with rugs that have much charm, preserving as they do so much of the old patterns and colors as is compatible with perfect regularity of work. The real glory of the Eastern rug is not in such regularity. It depends largely upon strange and unexpected modifications of color, and slight changes in the form of the pattern ; as has been suggested above. This has been partly guessed by the intelligent dealers who undertake to supply Europe with Eastern fabrics, and a somewhat elaborate system of changing dyes, even in surfaces of one general color, is followed in the modern rugs made to their order. Decided gradations from darker to lighter and even in hue, as from

browner to a redder orange, are constantly seen, even in modern rugs of no very great cost. Even the irregularity of pattern is attempted, and with so much success that the unpractised student is often betrayed into thinking that the piece before him, at least, must be of genuine up-country make and of the time previous to the coming of the Western employer.

Tapestry¹ is made by a slow process in which the artist with his colored cartoon beside him, but facing the back of his future piece of tapestry, secures upon a framework of parallel cords thread after thread of colored worsted, such as he selects to match the colors of his cartoon. In the Gobe-

¹ *Tapestry*: A fabric made by passing the threads which are to form the pattern, and which alone are to be shown, between the fixed strings of the warp, alternately, as in common weaving, but carrying this weave only as far with each thread as that particular thread is needed, — perhaps to cover only two or four warp-strings, — not often across the whole breadth of the stuff. The weaver has as many shuttles or bobbins or “needles” as he has different colors: beginning at the bottom, he carries his pale blue thread (for instance) through an inch only of the width of the stuff, once through and back again, and pounds down into place that woven-in pale-blue thread, with a “comb” of bone or ivory. Then comes perhaps a slightly darker blue; it is carried through an inch and a quarter alongside of the first patch — on a level with it, and also above it for a little way. In this way the finished piece of the work grows irregularly on either side and upward. Forty colors perhaps may be in use at once: they are wrought into each other by slow accretion; the broken lines of color are used like the hatchings of a drawing. The work, therefore, resembles in its nature that done in making needle-made lace: each is an embroidery, not upon a completed surface, but upon a mere screen of cords or strings or threads. In each operation, the embroidering creates the stuff, which has no existence until the decorative shuttle-work or needle-work is done.

THE WEAVING OF TAPESTRY

lins establishment in Paris, the *haute lisse* process is the only one used; the threads of the warp are vertical; the workman can walk round to the front of his growing piece and examine it. When the parallel cords (the warp) are held horizontal, the tapestry is made face downward, and the workman cannot see it without unshipping his frame: this process is called "low warp" (*basse lisse*). As the slow building-up of the mosaic of threads, for such it really is, allows of an indefinite amount of delicate gradation in the colors and of a very close approximation to precise accuracy in the following of curved lines, no matter how subtle their curvature, the worker in tapestry is always tempted into design, which, though possible to him, is still more triumphantly possible to painting.

This tendency is helped by the obvious fact that there must be a carefully made colored drawing from which the worker at the frame must take every detail of his work; and that this drawing will be made by one who is not himself such a worker. It is therefore easy and natural, almost inevitable, that the maker of this cartoon should forget his terms of service to the tapestry loom, and expatiate as a painter! He is probably, in fact or in desire, a member of the confraternity of painters: he is ready at all times to overstep the boundaries of the other art. The famous portraits framed into the wall of the Gallery of Apollo in the Louvre, remarkable achievements

of the Gobelins factory, would be better if they were painted as well in proportion as they are worked in tapestry; and the same skill which went to those achievements would have gone further if used in a composition such as tapestry alone could do full justice to. This depends partly upon the softness and flow of tapestry, which, though not equal to that of thinner material, is very great when it is used in the large pieces which are commonly hung upon walls. The object of tapestry, the purpose to which it was originally applied, is the covering and concealing of walls, and when this is carried out — when the arras is hung by tenterhooks near the ceiling and swings free without anything to draw it tight except its own weight and the setting of the rings upon the tenterhooks so that the top edge is reasonably strained — the colors and the peculiar surface of the tapestry are seen to the best advantage. Even if it is used as a curtain and allowed to fall in great folds which are more or less adjustable, and often readjusted, the charm of tapestry may be at the full, for it is the best tapestry when its color design is such that this breaking up into folds improves rather than injures the resulting effect.

It is evident, then, that tapestry is to be designed with a single aim, that of decorative effect. The wise designer does not try to represent natural scenery or single objects, man or beast or tree, but

PILLOW OR BOBBIN LACE

uses them all as suggestions toward his proposed design in color. The composer in mosaic, or in that translucent mosaic of the colored window (see Chapter XVIII), is restrained, for his good, by very similar laws.

Lace¹ again is a manufacture of great decorative effect with very severe limitations. It is of two kinds, not so readily distinguishable when complete and put to use, as distinct in their make. In each the thread is interlaced, tied, and knotted to form a meshed background with a figure upon it, but in the one case these threads are twisted, plaited, and knotted together by the fingers which handle threads kept in place—held down—by certain rather heavy pendulous pieces of bone or wood (rarely lead) known as bobbins, which are made

¹ *Lace, in decorative art*: A fabric of threads woven, twisted, or plaited together, but differing from other textile fabric or needle-work by its open make, with meshes large in proportion to the thickness of the threads, and having no solid or close-woven surfaces except small parts of the ornamental pattern. Its effectiveness in design is gained by the very fact of its being open, so as to show in a light color upon the darker ground of a garment; or, in the case of black or the rare colored laces, to show its pattern as relieved upon white or a light color. The names given to different kinds of laces, as from the nations or towns, Alençon, Angletierre, Argentan, Bruxelles (Brussels), and the like, have wholly lost their geographical significance. "English Point" is made in Auvergne, and "Point de France" in Venice. Moreover, the names as used for the laces sold in the shops are no longer of any close or continued application. Just as the name "seersucker," when that striped stuff went out of fashion, was given in the shops to a wholly different material, so the trade names of lace have ceased to correspond to those used by collectors. The student of the terminology of lace should consult the books by M. Seguin, Mrs. Bury Palliser, Ernest Lefébure, and Mrs. Jackson.

fast each to the end of the thread. The variety of pattern and of the character of surface obtainable in this way is likely to surprise one to whom the subject is new. Thus in Fig. 83 is shown a fabric just as simply woven out of stout threads as any



FIG. 83. Genoa guipure, seventeenth century

piece of "sheeting"; and Fig. 84 gives such another piece of string-work; only, in this piece there seems to have been added a little embroidery — a little needle-work — to the brides, or cross-pieces, which hold the fabric together. The threads of bobbin lace can be drawn tight into opaque and solid fabric, or a surface unlike anything woven in the usual way but equally firm and durable, or they can be left in a slight open mesh, hexagonal or square, upon which the pattern may

PILLOW OR BOBBIN LACE

be sewed or which may itself be broken up by the interposition of blocks of the solid fabric mentioned above. Thus in Fig. 85 there are contrasted an elaborate mesh-background and a very solid and uniform tape-like scroll and flower. Lace in

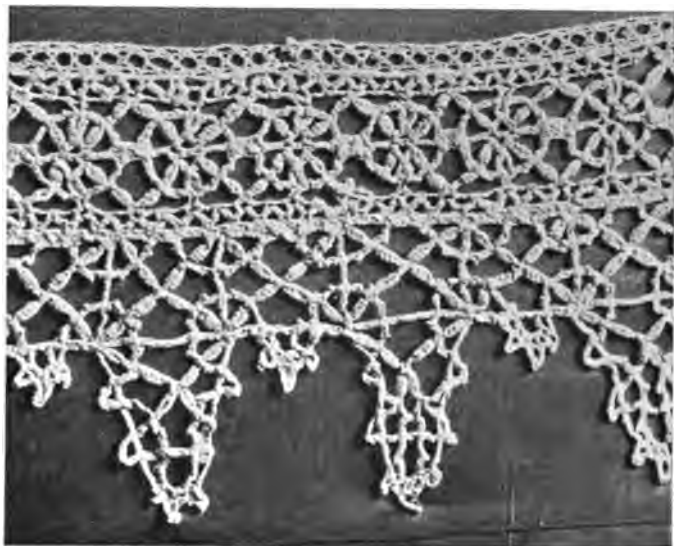


FIG. 84. Early Italian passamans (passement)

its artistic character must be left for the next chapter, but it is not to be forgotten that the essential character of it was fixed by the use of the twisted threads hanging from a cushion and manipulated by hand without the use of the sharp point or of any tool whatever, and that needle-point lace is an addition, a modification of the original manufacture by the methods of the embroiderer. The lover of handwork for its own sake and

because it is handwork, will be apt to prefer bobbin lace to point lace, and sixteenth-century



FIG. 85. False valenciennes ; Flemish work, eighteenth century

work to that fostered by Colbert and taken up by imitators of the French in other lands, no matter how splendid the latter may be to the eye.

Chapter Thirteen

EMBROIDERY

DECORATIVE needle-work, though certainly familiar to the ancients, has made little impression upon modern students as an important branch of pre-christian adornment. The tombs of Egypt have preserved a few pieces of embroidery; but practically the beautiful work of the Egyptian as of the Grecian maidens has disappeared, together with the delicate linens and woollens upon which they wrought their designs. The patterns reproduced from ancient garments, in color on painted statues (see Chapters V and XXIV), in monochrome on vases, and in engraving on Assyrian bas-reliefs are not to be understood as assuredly wrought by the needle. In very many cases it is a textile pattern rather than needle-work that is represented; and, again, many a representation in ancient wall-painting or relief sculpture of a figured canopy, or sail, or wall-hanging, suggests to the archæologist an original of painted cloth. For that pretty art of painting the textile fabric, in patterns, attends upon embroidery, accompanies

it even in the same piece, suggests new combinations, and prepares the way for new triumphs.

For our studies, the oldest embroidery is European, and dates from the Western nations of the ninth century, although perhaps the twelfth century is rather the time of the beginning of useful progress. The Moslem work comes later; even the exquisite needle-work of Persia and India is not known to us as of a time earlier than the fifteenth century A.D.; exceptions occur only in fragments so small and so relatively unimportant as to be but the slightest guide toward theories concerning the earlier development of the art.

In the European Middle Ages, however, with an impoverished people, and an unsettled government never reaching far, controlling the action of only small communities, without systematic policing or control over high and low alike, without systematic and regulated industry, while there was an almost complete inability to change one's place of habitation except as a poverty-stricken wanderer on foot, at the mercy of every strong thief and every tyrant who was beating up conscripts for his petty wars, — in the Middle Ages, a time whose distresses were lightened by that which a more sagacious and intellectual age is devoid of, a sense of the value of pictured and figured art, bringing with it a true sense of decorative design, — those arts flourished which could be practised in his own shed, near his

own fireside, by the individual of but small knowledge and of little social importance. It was the development of this mood of mind that made Gothic architecture what it was, as is set forth in Chapters XIV and XXVI; but the art of embroidery was sure to flourish under such circumstances, even as the art of illumination and the painting of miniatures in books would flourish wherever men were well enough informed to write on leaves of vellum and to care to bind them together into books. All that was needed for the embroiderer's work was the piece of reasonably solid textile material or leather, a needle, and some thread. Beauty of pattern was as obtainable with coarse flax or woollen thread spun from the distaff as if the appliances at the disposal of the workwoman had been more numerous and more elaborate. Beauty of color came afterwards and was separate, a thing which might or might not form a part of the embroidery considered as a work of art.

Any one who has seen an initial worked with the needle on the corner of a handkerchief in white thread has seen what the greater part of embroidery consists of, — that is to say, of stitches taken through and through the stuff, lying side by side or crosswise, and producing a slightly relieved figure upon the smooth surface. The greater number of stitches and “points” which are mentioned in treatises on embroidery are mere

EMBROIDERY

changes in the way the needle goes in and comes out again, and in the resulting loops and their combinations. There are, however, some other processes which should be named ; thus Couching



FIG. 86. Embroidery in silk with couching of gold cord.
Japanese work, eighteenth century

is the laying down of the thread, or bundle of threads of the cord or wire, usually a rather stout one, flat upon the surface of the stuff which is to be embroidered, and the holding of this in place by little stitches of thread meant to be as nearly

invisible as possible, but which are in some cases made to tell by their color upon the couched cord, as when a gold couching is given a warm tone by being held down by stitches of red thread. Fig. 86 shows a piece of Japanese embroidery done in large part by couching. The whole background being pale red, the semblance of a basket is produced with gold cord, laid, some twenty lengths, side by side, each two adjoining pieces held down by stitches of white thread; the little suggestions of mountain landscape are made by the same arrangement of gold cord; the chrysanthemums, which show so dark in the photograph, are of scarlet silk, each strand a twisted rope of fine threads, and so on; these and the little knots which pass for trees on the mountains being mere stitching. So embroidery on padding, known as Relief embroidery, Raised Satin Stitch, and what not, consists of surface material of the color and texture desired put upon cushions of inferior material which is usually hidden altogether. Thus in Fig. 87, a Persian saddle-cloth, the ground is plain blue silk, and upon this the whole design is raised in relief higher than that in any one of the pieces illustrated in Chapter XXI—higher than any struck coin or medallion. This is all done with yellow thread, silk and cotton together, laid flat, layer over layer, and then covered with stitching in the same thread mingled with gold.

Appliqué embroidery is that in which a piece

EMBROIDERY

or many pieces of silk, or cloth, or even of such material already charged with embroidery, are applied to the surface of the fabric to be adorned,



FIG. 87. Embroidery on silk, the flowers and leaves in relief
in cushions of yellow silk faced with gold thread.
Persian work, seventeenth century

and held in place by stitching around the edges. The piece so put on may itself be of the greatest richness, the whole acting like an encrusted enamel

in a plain metal surface; but the essential thing in appliqué work is that the piece so added should be in itself an addition to the general design, as affording a patch of color, large and solid and of any appropriate shape, of a kind hardly to be obtained by needle-work except at a great cost of labor. Where embroidery has a definite story to tell, as where it is of heraldic purpose, the bearings to be charged upon the escutcheon may often be obtained more intelligently, and therefore more usefully, by being cut out of another piece of cloth, for heraldic coloring is nearly always flat and without gradations, as shown in Chapter XX. Thus, if you have a red lion to charge¹ upon a gold field it is not so hard to cut out your lion from a piece of red cloth, taking great pains that he shall cover with his body, legs, and sweeping tail as much of the ground as possible, and then to apply and sew down this red silhouette upon the ground. That ground you then fill up, around the lion, with just so much gold thread work, probably "couched" rather than drawn through the stuff, as will make the whole blank surface of the quartering look as if it were gilded. This heraldic embroidery played a great part in the years of the later Middle Ages, when men of rank wore surcoats or jupons over their armor, these jupons being often worked with

¹ *Charge* (v. t.) : in Heraldry to put one heraldic bearing upon another, or upon the escutcheon.

the bearings of the owner, repeated over and over again on front and back, on body and sleeves and skirts.

At a later time it was especially in the adornment of clerical dresses — robes and accessory garments for the ceremony of the Mass — to which embroidery was applied with more especial richness and splendor. The cope, which is a great cloak, approximately semicircular in shape when laid out flat, and which usually has a kind of hood (or what was originally a hood) hanging in the middle of the back; the dalmatic, which was a garment like a herald's tabard¹ with short sleeves, usually not completed, nor closed beneath the arm, but covering the upper part of the arm alone (see Fig. 88); the chasuble, which was made up of a breastplate and backpiece, the two held together by broad straps over the shoulders, but otherwise wholly open; the stole, which was a narrow strip laid over the shoulders, passing around the neck like the collar of a coat and hanging down on either side in long, pendulous bands, sometimes wider at the ends than above, — all these were made splendid, sometimes by their material, the most costly that might be within reach, but also very often of plain silk elaborately embroidered.

¹ *Tabard*: since the abandonment of complete armor for the body, an official outer cloak, for a herald or pursuivant; that is, for the officer making special proclamation or supposed to direct certain court functions. It is short, with short or open sleeves, and embroidered with the arms of the sovereign whom the herald represents.

ITS USE IN LITURGICAL VESTMENTS

This needle-work was often in floss silk or what most nearly corresponded to that modern material, and such a surface as that would wear out easily;



FIG. 88. Dalmatic, embroidered very heavily in silk of many colors. Italian work, seventeenth century

and it is therefore often found much worn at the places where the officiant's hands rubbed or pressed it as he performed his office ; but the pieces, how-

EMBROIDERY

ever injured, remain always magnificent in effect. The pattern of these pieces usually retained a certain mediæval, or at least an early Renaissance,



FIG. 89. Part of a chasuble, embroidery on white ground with silk of many colors. Italian work, sixteenth century

character, — even when the piece, as is certain from the quality of the silk which forms its chief material, is evidently of a later date. Thus in the chasuble, Fig. 89, the pattern of scroll-work,

ITS PICTORIAL ASPECT

shown as large as possible, with just that termination of each spray and just that enrichment where sprays meet and part, is of the years before 1580; but these patterns linger on in church embroidery even while they change rapidly in other decoration. It is curious to see how late the early patterns hold, in this particular branch of decorative art.

Sometimes, and especially in Spain, though oddly enough the same tendency is visible in English mediæval work, the embroidery in soft, fluffy silk took on a pictorial aspect. The scrolls, of not very naturalistic design, were used as frames for a picture, for it can be called nothing else, — a picture of a saint or even of a biblical or legendary event. The needle-worker was, in intention at least, a painter; and the Crucifixion, a glory of angels, whatever would be a chosen subject for wall-work or window-work, was intrusted also to floss silk and the needle. The drawing would be unskilful and even inartistic in character; but the color effects would be fine. Such work is designed exactly on the same lines as the painting of the same epoch; the long stitches of soft thread cover the ground almost exactly as brush-strokes with paint might cover it; and, naturally, the figures and the composition are not those of needle-work. Once put the antiquity of the piece out of mind, its rarity, its sincerity, its relation to other fine art of the time, and it is rather unattractive.

EMBROIDERY

Such representative or narrative work has been done in very recent times by ladies who have heartily enjoyed such unrestrained play of fancy, — the needle and the soft silk, the wheat-ears and banded bees shown in gold on a golden-brown ground, the autumn foliage, the spring blossoms, many-colored, in their relief upon a sky-blue ground. There is a charm in such work, but it is the charm of childish attempts at fine art, — the charm of a not very intelligent archaism. English embroidery was celebrated all over Europe in the Middle Ages, perhaps on account of the greater richness of the designs undertaken. The same people who preferred for themselves the more “legitimate” designs of no immediate external significance might admire as a rarity the pictorial work of the islanders.

The tendency above mentioned to make the embroidered surfaces soft and perishable is generally avoided by Oriental workmen; although most elaborate specimens of loose and even semi-detached applications of soft silk fibres are seen associated with solid work. The people of northern India, including Cashmir and those of Persia, affect, as is well known, a kind of needle-work in which the silk is as tightly drawn as possible and forms a solid and almost imperishable fabric, which moreover is usually applied to a very trustworthy material. Fig. 90 shows another saddle-cloth in which the pattern in primary colors and

WORK OF WESTERN ASIA

white are wrought upon a crimson ground ; the whole work kept very flat and tight. A student of costume will find interesting not the embroid-



Fig. 90. Embroidery on silk. Persian work, seventeenth century

ered shawls and hangings alone, but the garments of many kinds in use in Persia, in Afghanistan, so far as that is a quiet and settled country, or has been so, and in India. The same kind of stitch is used, and the same colors are applied in the adorn-

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ment of women's garments in use in Persia to-day, the outline and hang of which seem clumsy to us; but the embroidered surface is beautiful beyond any possibility of Western handiwork.

The people of Greece, of Albania, Montenegro, and Bosnia are great in embroidery, and so are those of Asia Minor. The designs are nearly always traditional, and in almost every case could be traced back to their origin if one took pains enough, but they are in daily use, and serve to adorn pieces which are sent with the bride to her new home, or are worn by her as maid, wife, and mother, through a long lifetime. The use of embroidery in this way tends in a direction counter to our notions of personal cleanliness. Thus the heavily wrought robe of the Greek peasant can hardly be washed except in the unembroidered parts, and that only by holding the worked skirt up out of the water, while the parts most needing to be cleansed, or those more easily cleansed, are dipped and rubbed and beaten and then slowly dried. It is one of the many instances in which the modern tendencies of all sorts, even those which we think the most wholesome and essential, work against the beautiful arts of our predecessors on this planet.

Chinese embroidery is less known in the West than it should be. Our fathers used to bring crape shawls (Canton crêpe, as they were called) covered with embroidery of the ground color, but

WORK OF EASTERN ASIA

embroidery in varied colors has never been a common article of export from China, before our own time of monstrous prices for any delicate work of art; although the seventeenth-century Dutchmen and the eighteenth-century Englishmen did bring such pieces to their wives at home. The invasion of China by European and other powers, in 1900, and the extraordinary "punitive expeditions" by which a helpless people suffered for the sins of others, gave a great opportunity for plunder, and also for buying cheap the property of a frightened and impoverished people; and accordingly great sales of magnificent Chinese embroideries took place in Western cities in 1901 and 1902. In these great collections there was perfectly well seen the natural and obvious decorative sense of the native Chinese. Embroidery was helped by many other appliances, as mentioned elsewhere with regard to the Japanese; even gold foil and gilded paper were glued to the silk, — a simple kind of appliqué work indeed! But the strength of the design, of huge wall-hangings and small screens and garments alike, was in solid and perfectly understood needle-work. Japanese embroidery applied to those curious squares of silk which are used to cover presents of ceremony is generally very strongly made, the threads sufficiently stout and drawn tight, so that the needle-work itself will last as long as the silk or the woollen cloth upon which it is applied, and even be intact after

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the stuff has worn to shreds. The Japanese use embroidery less in costume, though it is so used, usually as a concomitant and heightening of splendid woven fabrics. Thus a silk robe of gorgeous



FIG. 91. Part of priest's ceremonial robe, embroidered in silk, with much appliqué work. Japanese work, eighteenth century

green and gold background, with great red and white woven flowers in its surface, will be helped out by embroidery in gold thread and in white and blue floss around that part of the skirt which is most visible and seems most to invite further

NEEDLE-POINT LACE

decoration ; and this added embroidery will perhaps represent or suggest some definite incident or some scene in the daily life of mankind. Fig. 91 is part of a priestly robe, the dragon being about three feet long ; and this embroidery is as solid in all its parts as needle-work may be. On the other hand, the long, red hair of a famous and legendary poetess is given, in another design, absolutely loose and floating, held at one end only of the fine and soft silk fibre.

One kind of needle-work which is not usually included under the head of embroidery must be treated in connection with it. Needle-point lace is that which either in its whole fabric or in its decorative parts is made by threads which are guided and put in place by the needle alone. The *fond* itself, or background formed of even meshes, is sometimes of needle-work as well, though this may be of bobbin lace (for which see Chapter XII). But the pattern is worked with the needle, and that very much as it would be worked on a solid material. There is less of background ; and therefore the needle has to partly work a background as it goes along. The first stitch passes around two of the little threads which form the mesh, and this and its succeeding threads gradually build up a little platform of greater solidity upon which the pattern is developed. This is true even where the pattern is extremely fine and apparently transparent. It is still of a much greater solidity

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than the open mesh around, and even where the surface of the leaf is generally very open there is a rim or *cordon* around the edge, which outlines it firmly and holds the pattern together, even if not the fabric (see Figs. 92 and 94).

The great lace industry of Europe hardly took shape before the middle of the seventeenth century.



FIG. 92. Needle-made lace, so-called Brussels point

Previous to that time there was much drawn work, that in which threads were pulled out of the piece of linen, and the little openings so made caught with the needle and hemstitched as it were, making little lines of open mesh to alternate with the more solid fabric around. Guipure was made also, and guipure is to needle-point lace as Russian wood-work with the adze and hatchet is to delicate carving in boxwood. This is hardly a fair comparison, as guipure may be beautiful and even refined in itself (see Fig. 93), but the comparative coarseness and largeness of parts in the one is to

THE EMBROIDERY OF BOBBIN LACE

the delicacy of the other very much in the suggested proportion. Even here, however, it behooves the student of lace to speak cautiously. Guipure, then, is often a variety of bobbin lace (see Chapter XII), but it is sometimes needle embroidery on a surface as of linen, which is then entirely

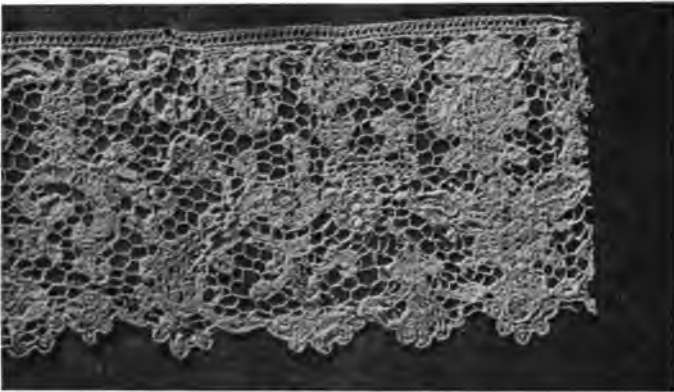


FIG. 93. Guipure à Brides, so-called English point

cut away except where the embroidery remains so that the pattern, the scroll, the zigzag, or the like is left open — *à jour*, — so as to show the fabric of a gown over which it is worn. Little twisted lines of thread called *brides* are carried across from branch to branch of the scroll to hold everything together. These are put in by the needle after the ground is cut away, and can be put in in greater numbers at any future time.

The delicate laces which we know as of Alençon, first made in the province of that name in

France; Valenciennes, named from the Flanders town; and later, Brussels, — seem all to have had their origin in the heart of France, in those regions of the Cevennes Mountains and in Auvergne where the wildness of the country and the shortness of the agricultural season leave much leisure for other industries. It is certain that during the reign of Louis XIV these mountain regions of France were the most fertile sources of the development of lace work. What Colbert cherished and tried to preserve for France was soon caught up in the other parts of Europe, and spread widely through the north. In parts of the south also it was carefully copied; the women of the lagoons of Venice worked lace throughout the seventeenth and eighteenth centuries, and there was developed the magnificent Venetian rose point, which is of all point lace the most superb in effect (see Fig. 94).

The position of lace in the world of decorative art is peculiar in this, that it is almost exclusively a contrast of solids and piercings. Applied upon any colored surface, a piece of whitish lace would be considered chiefly as a pattern in light or dark, much as an inlay is considered. The eye seizes the yellowish-white pattern, or in contradistinction to that, the probable darker background; the intelligence is gratified by the contrast; and one of the most attractive appeals to the artistic sense is thus made in a very simple way and in a way

THE DECORATIVE EFFECT OF LACE

moreover which allows of many changes. Take the piece of white lace, Figure 85, and remove it from the bluish-gray background upon which it lay when the photograph was taken, transfer it to



FIG. 94. Venice Rose-point lace

a piece of bright yellow, and the character of the design is changed in an extraordinary way. Again, dye the piece of lace a little, steep it in tea (a very common device), and then lay the greenish-yellow web upon a piece of dark olive-green silk and see how different again will be the result. These ex-

periments are indeed useful when one has to study effects in decorative art.

There is still another consideration as to this view of lace as one of the decorative arts. The surface of the lace itself is so modified by the cordons or thick rounded ridges which form the borders of the separate leaves and flowers, as in Fig. 94, and this in many kinds of lace besides the exceedingly elaborate Venice rose point; and again is so modified by the irregularities of the solid web, the filling, the broader surfaces of close-drawn, almost opaque, material; or again by the constant and rapid passing from one kind of mesh to another, as in Fig. 85 and Fig. 92, that the conditions are as if the substance of the inlay to which we have compared the lace were continually broken up with veinings and cloudings — with irregularities of surface, bossings and sinkings and the like in a way not often used in the art of inlaying, properly so-called (see Chapter XVII). Then we have the slight relief of the piece of lace itself from the presumably heavier material upon which it lies; and with this comes what is generally foreign to flat-pattern decoration of all kinds, the casting of little natural shadows. All this is merely a way of saying that lace is capable of wonderful decorative effect when used in costume and in such modifications of costume as are seen in stately ecclesiastical robes of office. And in this nothing has been said as to the effect of lace when stiffened

THE PATTERNS OF LACE

and left, as in the ruffs of the early seventeenth century, standing stiff and sharp-pointed, throwing, on occasion, its really beautiful shadows on the surfaces below it. Twentieth-century people have never seen that effect nor will they see it. It does not seem, however, that for actual decoration this would be an improvement upon the simpler ways which we know. The ruff itself, and all its modifications and its results, however acceptable as a piece of fantastic ceremonial, forms about the farthest removal from noble and perfected costume that the world has seen (see Chapter XXIX).

As to the patterns in themselves, there can be no doubt that this particular manner of displaying patterns is one of the most successful yet discovered. Let the student of such things trace or copy the outline forms of lace, its scrolls and leaves, its solids and piercings, and imagine them transferred to flat painting or to mosaic or to inlay or to printed paper or cotton, and see how inferior they would be. It is evident that the patterns which have been adopted and have perfected themselves little by little in the lace industry, are of less complexity, less refinement, less purity of line, less abstract beauty, than those in other departments of decorative design ; but it is also noticeable that they are entirely well fitted to the material, that more refined patterns would not be practicable in bobbin or in needle-point lace, and that we have here an instance of a perfectly traditional art growing

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among the people, impossible of improvement by the artist of great learning and originality, a thing perfect and complete in itself, and almost the only decorative art which holds its own in Europe in spite of untoward conditions.

Chapter Fourteen

BUILDING.¹

THE methods used by builders are of two general sorts, first, that by means of massive structure, as where stones or bricks are piled one upon another ; and second, that of skeleton or framed² structure, as where slender uprights and slender horizontals are combined, and often held together by slender diagonal pieces, as ties or stiffeners, this frame³ being built up with the purpose of enclosing or covering it afterward within or without, or both. In the first case the wall is the solid structure

¹ *Building* : The practice of putting together material to produce a structure, especially one for the shelter of human beings, their property or pursuits, or of domestic animals ; also for purposes of military defence, though this has little to do with the artistic results of building.

² *Framed* : Made up of parts, usually long and slender, which are held together at their points of meeting. A structure so made is called a frame.

³ *Frame* : In building, an assemblage of stiff pieces, bars, beams, posts and the like, as of wood or metal, put together by fitting the end of one to the side of another, and so on. In joinery (see Chapter XVI), a door or a window-sash consists of a frame, the openings of which are fitted with panels or lights of glass. In common trade-language, a frame in woodwork supposed to be put together with tenons or projecting tongues, fitted into mortises, or holes cut to receive the tenons.

which carries the floors, if any, and the roof. In the other case, that which carries the floors and roof is the series of upright posts, which may or may not be entirely concealed by an outside sheathing. Thus if we look at two houses in an American village, the one with walls built of brick or of rough stone shows on the outside the main principles of its wall-construction, as in Fig. 97; the other, presenting to the spectator an even and uniform surface of clapboards, up and down siding, or shingles, is of unknown internal structure, no part of its actual framework being visible, as in Figs. 102 and 103. If, instead of an American village, we were to visit a town in northern France, such as Lisieux, or one in western Germany, such as Hildesheim, or one in England, such as Chester, we should be surprised by the appearance of many decorative houses built of admirable framework of the most obvious and workmanlike construction, and with that framework all exposed. (See Fig. 98.) Roofs, among peoples of European race, are almost always built in the second or framed manner: but the roof-frames must always be sheathed, for the more perfect protection from rain and snow. The terrace roofs in countries where stone is abundant and wood scarce, as in central Syria and certain tropical and sub-tropical lands where rain is almost unknown, and where the flat roof is valued for its coolness as a sleeping-place at night, and where

also wood is scarce, are sometimes of masonry. The vaulting with which many rooms or great halls, churches and the like, are covered, is only a ceiling or inner roof, except in those buildings, rare in Europe, in which the same shell of masonry serves for closing of the room within and for shedding the rain-water without. One or two cupolas like those of Saint Peter's Church at Rome, the Cathedral at Florence, and several smaller ones, are of solid masonry: the whole of the Cathedral of Sebenico in Dalmatia, modern sea-coast forts in which the bomb-proof vaulting of the casemates is floored over with flags, and some pieces of modern engineering in steel-framed, brick-vaulted city buildings are roofed in that solid way; which is not uncommon in the Orient, even in much slighter and cheaper structures.

In massive construction there are two principal methods of work, one by means of continuous walls, with or without openings for doors and windows, the other by detached uprights, pillars of some kind, carrying horizontals, and this either by what is known as post and beam construction, or by arches thrown from pillar to pillar. A solid upright, such as a column or a pillar of any sort, carries one end of what is known as a lintel when it is spoken of as a piece of the construction, although the architectural term may be different; or it carries one abutment of an arch, or a mass serving as abutment to two or more arches or part of a con-

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tinuous vault, as in Fig. 101. In almost all cases, however, the building consists of walls with windows in them, while that part which is built with detached uprights is an accessory—a portico, or an arcade. In these porticos and arcades the openings are large, the solids smaller; in the main structure there is generally much unbroken wall, with openings of smaller size.

If, in either of these two ways of building, the solid structure above the opening is carried by a lintel, that is, by a piece of material which supports the weight by means of its resistance to cross breakage, this piece of material is subject to a strain against which neither stone nor concrete nor terra cotta is relatively strong; and it follows that the width of openings must be small. In the case of arches, each piece of material has to resist crushing force, and the resistance of stones and bricks in this way is enormous, so that the span of arches is indefinitely great. Fig. 95 shows how the pressures of the load above are distributed through the stones or bricks of an arch. There is nothing here but just that resistance to pressure which stone and brick are especially fitted to receive. There is, however, one other consideration; the arch is always pushing its two abutments in different directions, and therefore these abutments must be held fast in one of several ways, as by having a great weight of material in the wall beyond the abutment to right and to left, or by having a great



FIG. 95. Gateway of Roman Imperial date at Athens, Greece.
It connected the Roman "City of Hadrian" with
the Greek "City of Theseus"



weight piled upon the abutment, which will thus be kept in its place in spite of the thrust of the arch, or by having the two abutments tied together by an iron bar or the like. Each of these three plans is in use in architectural work of the highest importance and dignity. If, on the other hand, we adopt the non-massive, or framed construction, the conditions are those which we see in the United States, where a house is being put up in a country village, and also where a steel-cage structure is going up in a city. The frame is to be covered up in each of these cases — hidden so completely by wooden sheathings in the one case and by masonry in the other, that all signs of the essential structural framework disappear. There are, however, buildings which are treated otherwise, as has been said above. Fig. 102 shows this American sheathed system ; Fig. 98 the other.

As for the roofs, they may be entirely or nearly invisible in either system of building, not only in the case of the really flat roofs spoken of above, but also as those are in modern towns, almost flat, because covered with thin sheets of metal or with tiles laid in cement, and because with these materials a very little slope is sufficient to allow rain-water to run off. Such roofs as these do not affect exterior architecture at all ; and it often happens that a building will have a parapet which rises against the sky and completes the design of the wall. On the other hand, there are very

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many buildings of which the roofs are very important external features, rising high above the walls in steep slopes of material usually darker than that of the walls themselves, and with surfaces much less interrupted by window openings. It is easy to see how much difference in the possibilities of external architecture there exists between a building which stands like an almost cubical box, with four vertical sides and one horizontal surface at top, and a building which, with vertical sides, is closed at top by a pyramid or a structure which resembles a pyramid at least in having steep, sloping sides. In the one case, the walls themselves and the arrangement of the openings in them form much the most important part of the possible architectural design, the only exception to this rule being where the building may be much broken up in its ground plan with wings and almost separate pavilions,—an arrangement seldom practicable, not only because of the want of room in modern cities, but also because of the much greater cost of a building with comparatively so much exterior wall, involving the more elaborate workmanship of such wall, and many more corners to build carefully. In the other case, the roof is an important part of the possible architectural design, and may easily become a controlling part. It was one of Ruskin's dicta that the roof was more important than the walls, because it embodied the very purpose of the house,—the

STEEP AND LOW ROOFS

keeping of the rain away from the inmates. Architectural designs are, however, seldom controlled by sentimental reasons of this sort. Constructional reasons have always had far more weight with the designer in all times when architecture has been in a healthy and vigorous condition; and the traditions of Style reinforce, or, as Decadence begins, replace them. The roof is made steep to keep the water from penetrating the joints between slates, tiles, or shingles, and the roof once built with a high and visible rise above the walls, suggests an architectural treatment which will affect the exterior of the building as a work of art. Accordingly all manner of devices have been employed. Sometimes dormer windows, which in their absolute utilitarian way need not be large nor extensive, have been made into huge structures of wrought stone, seen from afar as partly detached monuments, and throwing upon the roof, shadows of surprising power and effect upon the general design. Sometimes parts of the wall are carried up into the roof, as if in an enlargement of the dormer-window idea — as if some dormer windows had grown too large for their places and had established themselves as separate pavilions (see Fig. 96). Sometimes staircase turrets rise above the roof and dominate even the dormer windows, and very commonly the chimneys are set with some care and pains in the outer wall of the building, and built up with real enjoyment

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in the shafts of cut stone, or of brick and stone, which shafts, while they must of necessity rise to a certain height relatively to the ridge of the roof,



FIG. 96. Chateau of Josselin in Brittany. Court-yard front

lest the fireplaces smoke, are the more welcome to the architect on this account. Again, in some roofs, the dormer windows are set in rows, each row of windows representing a story of the many-

EFFECT OF STEEP ROOFS ON DESIGN

storied garret, and the whole sloping surface being treated with elaborate fenestration much as if it were a vertical wall. Such roofs as these are to be found in Belgium, among the Flemish town-



FIG. 97. View in Nuremberg, Bavaria : houses of sixteenth and seventeenth centuries

halls like that of Louvain and that of Brussels ; and the old towns of Germany are rich in such picturesque dispositions (see Fig. 97). Of the others — those with the lofty chimneys and high stone dormers — the French châteaux of the early Renaissance are the favorite examples. There are chimneys which rise thirty feet from the eaves, and

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dormer windows three stories high, and yet the harmony secured between these and the general masses of the building is seldom found deficient. Again, the roofs are broad and low, with slight pitch, and often with overhanging eaves. With such roofs, chimneys are low and dormers hardly visible if they exist at all.

The processes of building are multifarious and include very many of the industries treated in other chapters of this manual. Thus, carving is used in some of its forms for all the stone dressing; modeling is used in the making of all the brick and terra cotta, plain and decorative; woodwork of a rougher kind is used for the floors and roofs and the occasional interposition of a wooden partition or screen, and more delicate woodwork, or joinery in its more usual sense, for the interior finish of doors and door frames, casings, windows and their appliances, dados and complete linings of rooms, and finally for such pieces of furniture as are attached to the building. Inlay in marble and in wood, painting and plaster work, as well as mosaic in glass and in ceramic tiling, are all used for those decorative accessories, which become almost necessities in buildings of any elaboration. The only industry which is peculiarly that of the builder as differing from the mechanic in other departments of decorative work is the putting together or piling up of his materials so as to produce a house which will stand and prove adequate for all its purposes. This industry

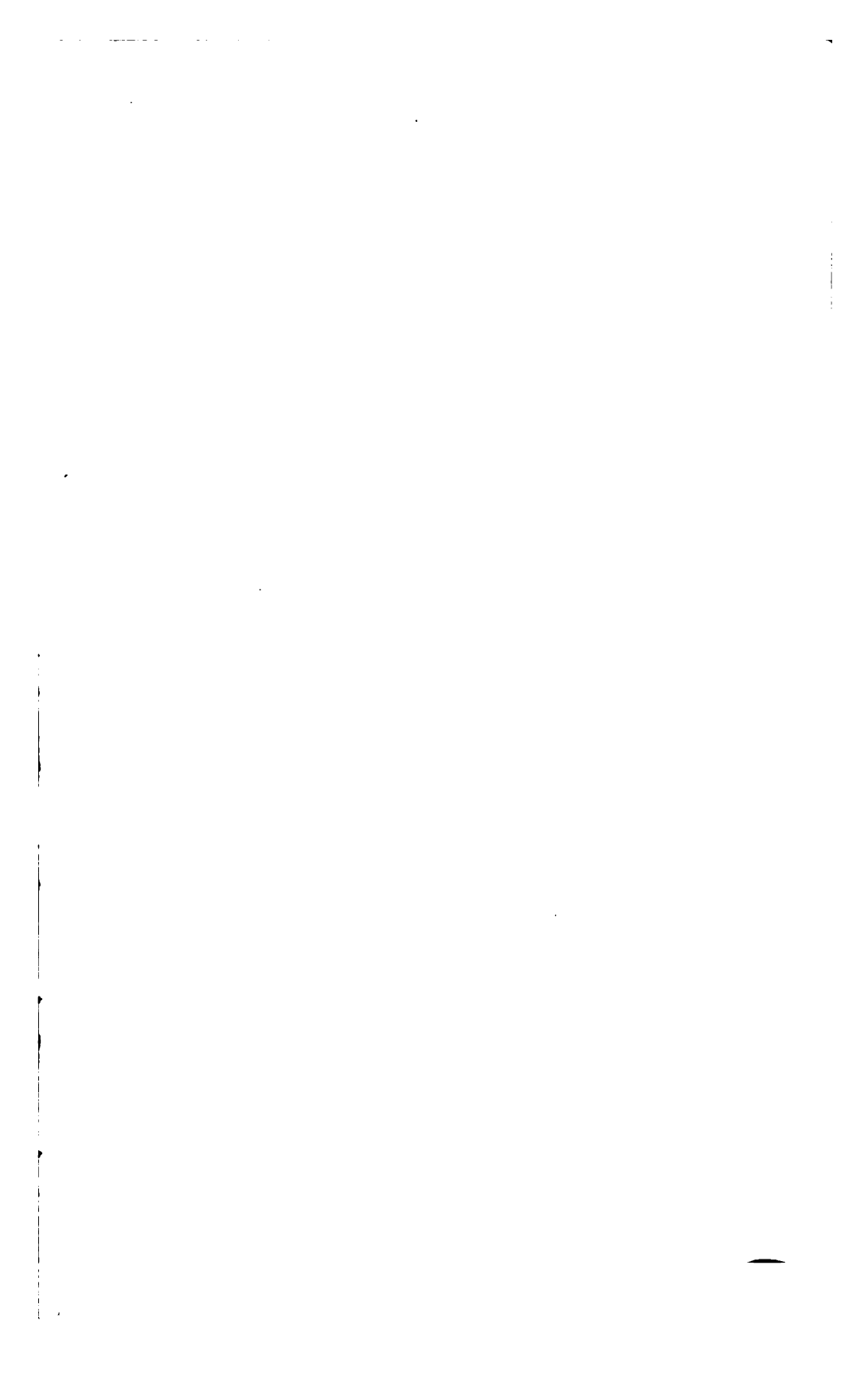




FIG. 98. Timber-built house at Strasburg on the Rhine,
sixteenth century



is the subject of this chapter, and we have now to consider what the essentials of construction are.

In the first place, what is said in the early paragraphs of this chapter indicates the necessity of providing against certain special strains. In framed building, each square made of two uprights and two horizontals, must be stiffened by the use of diagonal braces; except where in modern steel-cage building, the parts are strongly riveted together at their points of contact. The way to meet this necessity in an artistical manner is shown in Fig. 98, where braces are arranged skilfully and so as to produce a really interesting design, and are then richly carved. So, in massive work, the superincumbent wall must not be allowed to bear too heavily upon a lintel, or the lintel will break. If, then, an opening, as of a door or window, must needs be spanned by a lintel, it will be essential to support that lintel either by a pillar in the middle or by two pillars, or by two corbels which will diminish its bearing. Or another device may be employed. The lintel may be left unsupported, but the greater part of the weight may be taken from it by means of a discharging arch. Fig. 99 shows all these devices at once. The central doorway has a middle pillar and also two corbels to support the lintel; the side doorways have corbels only; all three have discharging arches which take all weight from the lintel, except that of the sculptured slab of stone, the tympanum, as it is called. The

BUILDING

same illustration shows the small free arches flanking the central porch, and three large arched roofs in the porches themselves. The triple arcades

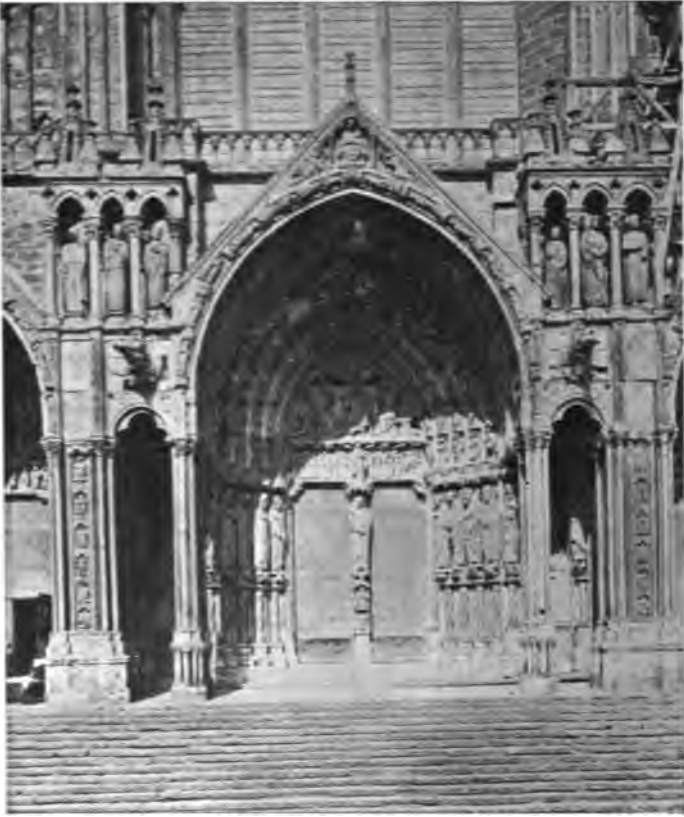


FIG. 99. Chartres Cathedral : south porch, central doorway.
The sculpture is of about 1275

above, where the statues are, one under each arch, are not of arch construction at all; each canopy is composed of large slabs of stone which meet at the point of the arch and sustain one another there,

PROCESSES SUGGESTING THE DESIGN

supporting the little cornice and the pinnacles above. Those arcades are, therefore, of corbelled construction.

Now, it is evident that each one of these ways of proceeding, if it is followed in the whole of a building, suggests a decorative or, as we commonly say, an architectural treatment of its own. If it happens that each one of these is thought to be identified with a particular style among the many historic styles of architecture, that fact ought not to influence the reader too far. The time will come when the designers of artistic buildings will realize that they are free—that the loss of that natural tradition¹ which has been the life of architecture in the past, however serious a loss, has brought with it a liberty to recompose their designs according to logical principles and with regard to materials and ways of building not formerly in use, and to disregard those questions which have to do with any historical style, inasmuch as no such style will have been recognized by the de-

¹ *Tradition*: in fine art, is of two kinds. That referred to in the text as “natural” tradition is the handing down from master to pupil, from a generation of builders to their successors, of ways of building and decorating which seem matters of course, and which change insensibly. So the Grecian Doric style is divided by the German archæologists into the Pre-Doric, the Rude Archaic, the severe Archaic, the Developed Doric, the Late Doric, and the Corrupt Doric of the Roman period, six distinguishable though very closely similar styles, taking a thousand years to arise, develop themselves, and perish. The other tradition is that of the schools, largely artificial, entirely modern of the last three centuries, and mainly contained in books.

signer while at work upon his design. So, in the case of the columnar portico, the Imperial Roman way of building this is shown in Fig. 100; nor was the original Grecian way — the plan followed in the fifth century B. C. — radically different. The Italian artists of the *Risorgimento* (that which the French afterwards called the *Renaissance*) were eager to restore Roman forms and even Roman principles of building, but it was a slow and difficult process, and for many a year they were not only content with, but were even delighted with the system shown in Fig. 101. It will be seen how different are the schemes in these two cases: in the one, the structure is trabeated¹ exclusively, the lintels have so little weight to carry that they may be comparatively long, and this structure of column and lintel with two or three courses of stone above it is, and is intended to be, the whole architectural composition; while in the Florentine example, not only is the wall above the columns carried on semicircular arches, but the portico itself, the broad ambulatory twenty feet wide, is roofed by an elaborate piece of vaulting in solid mortar masonry. Here are two broad, open porticos: but they are not at all alike, because the building of them was very different and so the designs had to be very different. In the one case, trabeation is carried out without a thought of there

¹ *Trabeated*: Built with beams; consisting of beams; characterized by the use of beams or lintels rather than arched construction.



FIG. 100. Temple of purest Roman style at Vienne (Isère),
France : thought to be of the first century A. D.

TRABEATED AND ARCUATED PORTICOS

being any other structure possible; and this although the Romans of the time were most accom-



FIG. 101. Florence, Loggia of S. Paolo. Designed by Brunelleschi about 1440. The rondels in the spandrels by Luca or Andrea della Robbia

plished builders of massive and enduring vaults. In the other case, although the structure is entirely arcuated, it puts on something of a pseudo-classical

air by dint of having separate round columns to carry the points of weight and thrust, instead of the built-up and in outline more complex piers which would have been characteristic of earlier structures of mediæval design. One comment is to be passed upon this Florentine building, namely, upon the frank adoption of what Northern builders would have considered a monstrous solecism. This is the elaborate system of ties which keeps this piece of vaulting from tearing itself to pieces in a few hours or days. From the point of view of constructive architecture this is indeed a fault so serious that at least one writer whose own designs and whose critical studies are founded upon the practical and in a sense scientific work of the French Middle Ages, criticises these Italian buildings as unworthy of serious consideration as architecture. We know perfectly well what Eugène Viollet-le-Duc means by this, and we sympathize with him to a certain extent. The fact that this arcade is lovely in its proportions, in its materials, in the sculpture which is added to it, and in its general aspect as we consider it in connection with the square upon which it fronts and the town of which it forms a part—that fact is to be considered on the other hand as modifying what must be after all a tentative kind of criticism, a criticism which recognizes on the one hand its constructional shortcomings, and on the other hand its artistic beauty.

Buildings which are almost wholly free from constructive errors or shortcomings are to be found in Egypt according to the style perpetuated there through five thousand years; in Greece and the Grecian colonies of the Mediterranean, representing an epoch about six centuries long; in the Byzantine or Eastern Roman world, an architecture which, beginning with the fifth century A. D., has not entirely perished even to-day; and in western Europe from the time when the scattered and impoverished communities of the Middle Ages grew strong enough and intelligent enough to build wisely, that is to say, from about 1150 A. D., until the invasion of the classical revival coming from Italy. These have been the great epochs of consistent and intelligent design based upon building, but it need hardly be said that there have been many outlying provinces of the kingdom of architecture which would have to be considered separately were this a historical investigation which we are conducting. Thus, the seventeenth century churches of Paris, S. Roch and the chapel of the Sorbonne, are, in their main masses, designed as completely in accordance with the constructional means employed as any French building of the thirteenth century A. D. or any Greek building of the fourth century B. C.; and yet these churches were built in the very middle of the later neoclassic epoch, which it has been the fashion to decry as a decadent and altogether

BUILDING

unworthy time for architecture, — a theory which depends upon the abandonment, by those late builders, of strictly classical details. So Roman building under the great empire was not always disfigured by the application of a pseudo-Greek veneer to buildings of a totally different constructive organization. There are many Roman buildings which are extremely consistent in their design ; and among them some of those which recent research has found in an almost uninjured condition in lands that were prosperous when the empire was great, but which have decayed to deserts under Moslem dominion, — lands in Syria and in North Africa. In like manner, the perfectly simple, obvious, and straightforward method of building which grew up in the United States under the combined influence of the abundant forests of timber trees and of invention leading to methods of working wood and iron — cutting and planing studs, joists, and boards, and shaping nails and spikes cheaply and in vast quantities — a structure of simple framework, sheathed simply by means of weather boarding, is as respectable as any architecture which the world has seen. It is as worthy of respect, but not as worthy of our careful study, because neither its material nor the instinctive habits of the race have led to very decorative results. There were indeed in this system of sheathed framework, certain possibilities which were not discovered until, in the last quarter of

LOGICAL CONSISTENCY, OLD AND NEW

the nineteenth century, certain highly trained architectural artists gave their thoughts to it. Then we had built at low cost in our villages



FIG. 102. Frame house, covered with shingles, at Orange, New Jersey, designed by Babb, Cook & Willard, about 1887

houses as good as those shown in Figs. 102 and 103.

There is, however, one very important consideration. Architecture in the nineteenth century was throughout European lands, in all parts of the world, in a state never before seen in any historical epoch. At no previous time was it a matter of indifference and a matter of private choice what style of design would be adopted by the owner or the architect of a given building.

BUILDING

In every epoch, from 5000 B. C. in the valley of the Euphrates and the valley of the Nile, to 1800 A. D. in England, France, Germany, Italy and



FIG. 103. Frame house covered with shingles, at Chestnut Hill, Massachusetts. Designed by Andrews, Jaques & Rantoul, about 1886

throughout European lands and their colonies, a building, if undertaken would be, *of necessity*, conceived and carried out according to a recognized system of building and design. If, then, the awakening to artistic matters of the peoples of Europe about 1850 A. D. allowed them to per-

ceive the fact that then no such uniformity of practice existed, and that architects felt themselves at liberty to design in any historical style whatever, and if this condition of things has prevailed ever since, in spite of the universally admitted fact that it is unfortunate, the reasons for this state of things must be rather numerous, varied, and far to seek. It is impossible to explain the full causes of this or the different opinions which prevail concerning those causes, without writing a volume on that subject alone. But it will not be disputed that one cause is the disappearance of binding traditions natural to an epoch which makes scientific investigation its first and most fruitful subject of thought, and that another cause is the nearly related one that the best intellect of the day is not giving thought to artistic expression. The reader will observe that this reflects in no way upon the intelligence and ability of those individuals who are devoting themselves to artistic modes of thought. The weight of intellect is the other way; and the chosen modes of expression of the nineteenth century in the world of imagination and fancy, representation and record, were first verse, then music, and, in that which appeals to the eye, painting in some one of its many forms, together with drawing carried to a singular pitch of ingenuity and expressiveness. So that the architect who may choose to put such thought into his work as would have been of necessity put into

the work of his predecessor of two or three centuries back, if he have the gifts enabling him to bring imagination and power of abstract design to his task as well as ordinary knowledge of building, will find that his embodied design is accompanied by buildings which have been erected without design at all, and by other buildings put up either as professed copies of what has been done in the past or copies of the spirit and details of those buildings somewhat rearranged owing to absolutely novel necessities. Under these conditions it would be a matter of surprise if anything very important in the way of architecture were produced.

Let us consider, for instance, the steel-frame structure with which American cities have become familiar since 1880. It has the singular advantage—this method of construction—that you can build the frame of a twenty-story building in a very few weeks, and can then proceed to put on the outside case and the inside finish anywhere, at top as well as at bottom, or in a half a dozen parts of the building at once. The structure is a framework of relatively slender steel uprights and horizontals held together in the firmest possible way so as to do away with the necessity of elaborate diagonal bracing; but this structure is by its very nature prohibited from taking on the aspect of a decorative system of building, that is to say of an architecture. It must not be exposed so as to be visible either within or without, and this because

ATTEMPTS TO MEET NEW CONDITIONS

of the great prevalence of serious conflagrations in American cities, which have made it the primary need of each municipality to prohibit the exposure of this steel frame and to require its jacketing by mason-work many inches in thickness. Two or three American architects have struggled manfully with the problem. They have tried, and not wholly in vain, to devise a system of exterior ornamentation which might allow of the covering-in of all the parts of this cage with a suitably suggestive and not disagreeable investiture. The vast majority of the architects have been satisfied, so far, however, with covering up their light metal work by what seem to be solid walls of masonry, though they are in reality mere veneers, and of the giving to a twenty-story, tower-like building three hundred feet high the appearance of an extremely massive fortress tower, although its walls in reality are thinner than the masonry walls of the five-story building next door. It is not meant that any serious harm is done to modern architecture by this pretence; this is not a cause, but a symptom of our ailment. Modern city architecture is neither better nor worse for the appearance of these lofty structures; and all that one regrets in their appearance is that in this case again the opportunity has been left unimproved of designing a new class of buildings as they should have been designed.

Chapter Fifteen

PLASTERING¹

IN the protest which, during the second half of the nineteenth century, was made against the slovenly habit of using one material to imitate another and more valuable or more admired substance, the real merit of plaster and its like came to be overlooked. A rough wall can be faced with weather-proof stucco outside, and within with fine mortar (that which is ordinarily called plastering), with pure gypsum or plaster of Paris, or with one of several forms of fine cement. Highly decorative and perfectly artistic results can be attained in this way; because the surface of the plastic material lends itself to all kinds of relief sculpture and incision. In good

Plastering: the application of any soft material which hardens and retains its tenacity and its form under ordinary circumstances. Plaster of Paris (gypsum), cement (a powder obtained from burning certain rocks, and which combines with water much as gypsum does) are the chief materials used when plastering is made an accessory of building. These may be used pure or mixed with sand, producing what is called mortar; some of these mortars are used for making what is called artificial stone as well as concrete of the usual sort. As the subject is treated in this chapter it has to do with a kind of modelling in one of these soft but soon hardening materials.

THE COATING OF GREEK TEMPLES

times of architectural art, when straightforward methods of building were matters of course, these plastic materials were accepted as a covering and nothing else, and were allowed their full share in the work. Simple effects, with incised lines and varying colors, were easy to secure for the humble house; the splendors of plastic art were equally accessible for other occasions. When Greek temples were built of coarse-grained stone, as at Pæstum, at Girgenti, and at Olympia, the columns and architraves were covered with stucco, in which material indeed the most delicate architectural forms received their final modelling. This plastering was made necessary by the unfitness of the stone to receive its polychromatic painting. But this use of a soft wall-covering which would harden was not a thing to neglect; artistic possibilities were visible therein. Columns could be built as cylinders of common brickwork, and then coated with hard plaster, two inches or more thick, allowing of all the needed flutings and reedings, as in the Temple of Isis at Pompeii, and in many a house there, and in two or three in the small cleared space at Herculaneum. When, instead of building out in stucco for the architectural details themselves, there was only a smooth masonry vault to be lined and made splendid, stucco plastering was at its best. The great vaults of the thermæ and basilicas were panelled in that material, perfunctory octagons alternating with smaller

PLASTERING

squares; but the vault of the bath of Stabii at Pompeii is exquisitely adorned with interlacing guilloches enclosing relief groups of figures and animals; halls of that congeries of Imperial buildings on the Palatine are panelled so as to enclose really lovely bas-reliefs of cupids; a huge room of



FIG. 104. Rome : stuccoes from a vaulted room near the Tiber, work of the first century A. D.

the villa of Hadrian at Tivoli is glorified on a still more extensive scale by the same means. In the Farnesina Garden on Tiber-side is an antique hall of which the whole wall surface has been covered with such relief in the most elaborate and most refined designs of figure subject (see Fig. 104). This is really sculpture of a very high order, the forms, the draperies, and even the human faces modelled as finely as if each one were a medallion in wax; and, in the so-called tomb of the Valerii, outside

ROMAN STUCCO RELIEFS

the walls, on the Via Latina, the enclosing pattern of circles and octagons and squares is as carefully planned and as delicately worked as the bas-reliefs themselves, which are of such slight and graceful



FIG. 105. Campagna of Rome. Stuccoes from a tomb on the Via Latina. Work of the first century A. D.

figure subject as the Pompeian paintings of dancing maidens (see Fig. 105). These and other pieces previously known had excited in former times less attention than they deserved; and all have helped us now to rewrite the history of Roman art as it is now being very generally rewritten.

PLASTERING

Even in the far later day and far less thoroughgoing work of the Tudor monarchs, in England under Elizabeth and James I, the plastered ceilings, introduced perhaps from Italy, however un-



FIG. 106. Hatfield House. Long gallery ; plaster ceiling of about 1610

lucky in themselves as replacing the manly old system of beams and girders which formed the underside of the real floor, were yet carefully designed, and that with a certain daring firmness as if the possibilities of the new material had been

grasped at the first beginning of its use. A ceiling such as some of those in the great country palace of Hatfield is worthy to rank with purely architectural decoration anywhere (see Fig. 106).

It is still with the Imperial Romans, however, that our fancies remain when we think of what is possible to plaster and stucco. Among them the lower part of a temple wall might be sheathed with marble slabs, because there the impact of really heavy bodies was to be feared, and blows from sharp instruments could not be avoided in the course of succeeding years. Moreover, a marble slab could be rather easily detached and replaced if broken. But above the six-foot or ten-foot line the wall was coated with stucco blocked off in imitation of courses of stone. This stucco, though perhaps always left white in the public buildings of the Imperial city, was frequently charged with color in residences, as we know from the discoveries in Pompeii. A whole system of wall decoration is traceable there, as pointed out in Mau's Pompeian book, in the simple process of coloring each block or apparent block of the ostensible stone wall with a separate hue, and then alternating these raised surfaces of green, violet, and red in such play of light and dark, warm and cool, as the artist might imagine. Vitruvius tells us that this plastering was, or at least, in his opinion as a builder, should be, put on with extreme care and

PLASTERING

with quite remarkable precautions of time passed and patience used. Three coats, four coats of plaster with sand, three coats more made with marble dust (unlucky that he did not tell us how thick these coats were, and exactly how mixed!) would produce, he tells us, a plaster so attractive that old pieces of it were cut from ruinous walls and then used for table tops. He goes so far as to say that this was not at all mere saving, but because the polish of the old plaster was so beautiful.

Nothing like that comes in our modern way; but the finish by means of certain patent cements of interiors of buildings meant to be wholly incombustible, fireproof, has given the observers who have watched the work done since 1885 a hope that with the coming of a more sincere demand for artistic architecture this plastic substance may well be utilized in the Roman way. The cement out of which a mere surbase of a few parallel mouldings is "stuck"¹ would furnish equally well the material for elaborate patterns stamped or cast in moulds and fixed to the walls in a way altogether permanent.

In Great Britain and the United States, plastering is so much identified with light substructure

¹ *Stick* (v. t.) : to give shape to, as a moulding, by running a cutter, a scraper, or the like, in one direction, so as to produce a group of forms having everywhere the same transverse section. This is applied to the making of wooden mouldings by a machine like a planing mill; and also to the making of soft plaster mouldings with a form; though this last process is also called running.

of laths ; and in America especially, the whole interior even of city houses is so generally divided up with wood-framed floors and partitions, that we think of all forms and all varieties of this appliance as hopelessly trivial and temporary. This impression can be done away with by the general adoption of the custom of applying the inner plastering, as the external stucco has always been applied, to solid masonry, of which it immediately forms a seemingly unremovable part. Some of our newly built, quasi-fireproof structures have been finished within by dadoes and panelling run in hard cement, and forming a part of the plastered facing of the brick walls. Here is a beginning of what may be an excellent method of decoration. It leads directly to the noble work of the vault in the Farnesina Garden as above described ; but even before that advanced point of fine art is reached, admirable borders and panel-fillings may be made in low and in high relief—if some sculptor will give his attention to the designing of “arabesques.” Indeed it is painter’s work as well ! It is study in delicate light and shade that is wanted—light and shade distributed over flat surfaces ; and where is the painter that does not work in monochrome at times ?

It is not to be forgotten that plaster is the material in which is shown, at the annual salons of Paris and other great public exhibitions, all the more important works of modern sculpture. The

PLASTERING

medals are given, the pieces are bought of their creators, the reputations are made, with plaster only for the incorporation of the sculptor's thought. These plaster figures are cast from the wet clay; it is a mere transferring of the forms from a plastic material which cracks and crumbles as it dries to one which is permanent. And in this connection we must recall the bas-reliefs of the Italian Renaissance — the pieces in *gesso duro*, saints and Madonnas — which adorn our cabinets. There are some of these works of art which exist also in more precious material; but the greater number are not known to the modern world of dealers and buyers otherwise than as reliefs of plaster, framed in wood, with ornamental carving simulated in plaster or in another plastic composition, and painted the color of dark bronze. There is something like this seen in those chests and coffers of the seventeenth century whose wooden tops and sides are covered thick with what seem carvings, painted according to some chromatic scheme. They are really made as many of our gilded picture-frames are made, the ornament in some hard variety of plaster; and even a metal rim may be used here or there.

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The subject of plastering includes exterior decoration of two kinds, although one of these is strictly a branch of painting and noted further in Chapters V and XX, and the other is a variety of

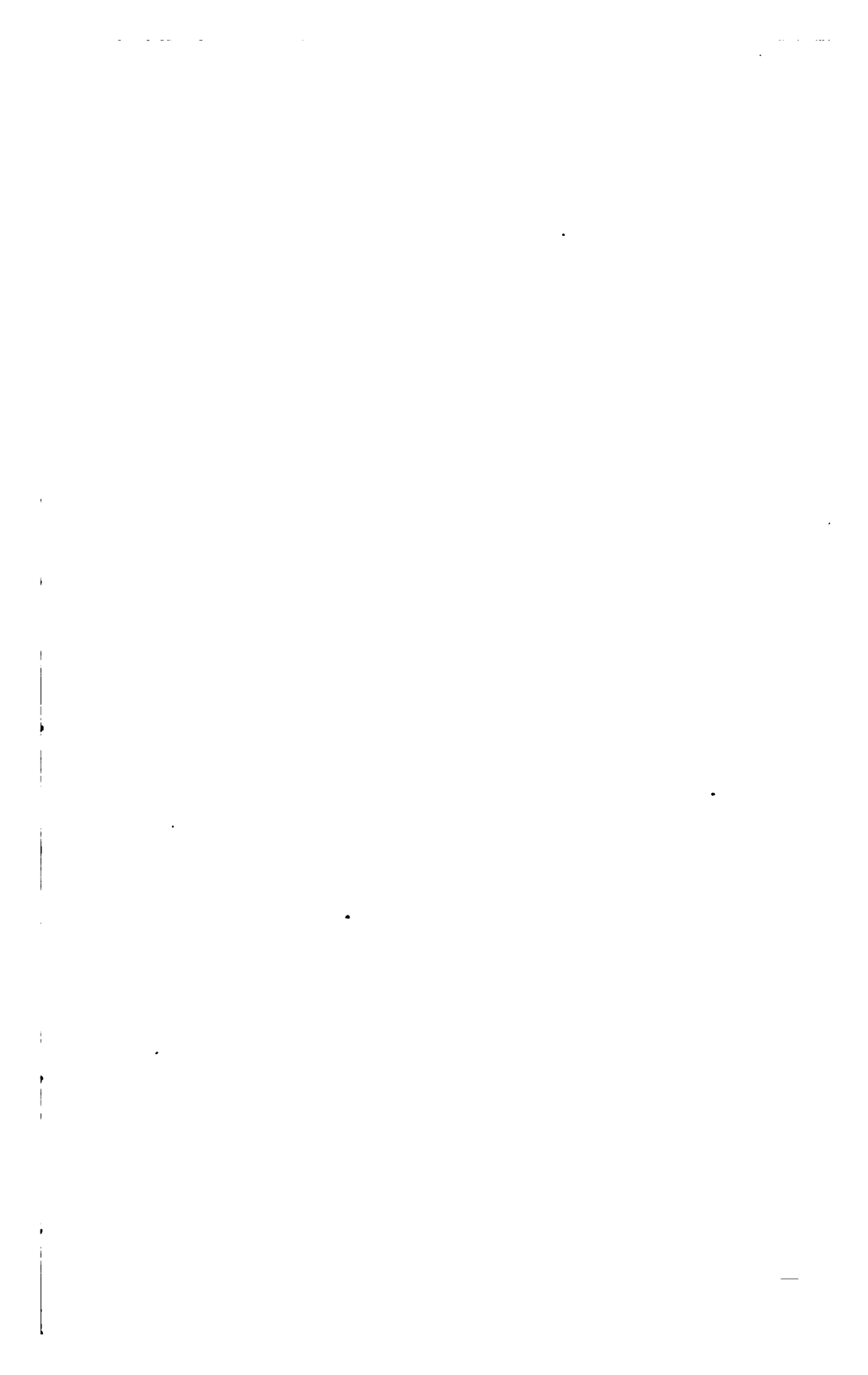




FIG. 107. Florence, Palazzo del Conte Boutourlin. Sixteenth-century Painting restored



engraving, for which see Chapter XIX. Fig. 107 gives a Florentine house-front. The building, of the sixteenth century and ascribed to several different architects of the greatest period of the perfected Renaissance, has been renewed as to its exterior face on more occasions than one; and yet the present system of painting and even the details of the design are sufficiently authentic as faithful reproductions of early work. Similar fronts from Florence itself, and earlier examples from Vicenza would be easy to give; and again the possessors of photographs made long ago in Venice, when Ponti first began to apply the new invention to architecture, will find among their treasures Venetian painted fronts as well. Some of the Venice fronts were painted with fully realized legendary or metaphorical subject; but those great compositions have perished, — one building alone retaining traces of its decoration down to 1860. The art has been revived in Germany in very recent times; nor would it be hard to find in other European lands some traces of this attempted restoration of what was once a beautiful device for the adornment of an otherwise plain exterior. The question of combining painting with a stucco exterior in such a way that it will bear the exposure of the years of storm and changing temperature is not, then, as difficult as it would appear, for the climate of Berlin is harsh enough and damp enough to try the strength of any exterior coating of whatever sort.

PLASTERING

Florence, however, remains the best town for the study of these external effects. By this time the Palazzo Borgo-Antellesi must have been restored, and its elaborate paintings refreshed. The Palazzo Guadagni is as spick and span as it was in the days of Cronaca. The Villa Palmieri, in the close neighborhood of the city, is a good instance of similar work on a very large scale, done as if with the purpose of telling against the dark foliage and the broken hillside scenery; and within the walls the old Palazzo Quaratesi has been put into shape and stripped of its modernizations as a hotel, showing now a perfect example of the mural painting in decorative patterns as it was understood by the men of the Risorgimento.

The art of *sgraffito*¹ decoration is used in the adornment of small objects as well as in architectural compositions. It is, however, in the house fronts of central Italy in the fifteenth and sixteenth centuries that its most important developments have been reached. The cartoons for these decorations were sometimes furnished by artists of high rank; and at a time when drawing of the human figure and of all decorative detail was familiar to very many workmen other than the artists of exceptional renown, such cartoons were

¹ *Sgraffito*: ornamentation by means of incised lines scratched or cut in damp plaster. The term is an accepted noun in Italian, and it is not necessary for correct usage to employ the participle of the verb *sgraffiare*, as is sometimes done in English writing.

SGRAFFITO DECORATION

sure to be effective. It is difficult to procure adequate photographic representation of fine early

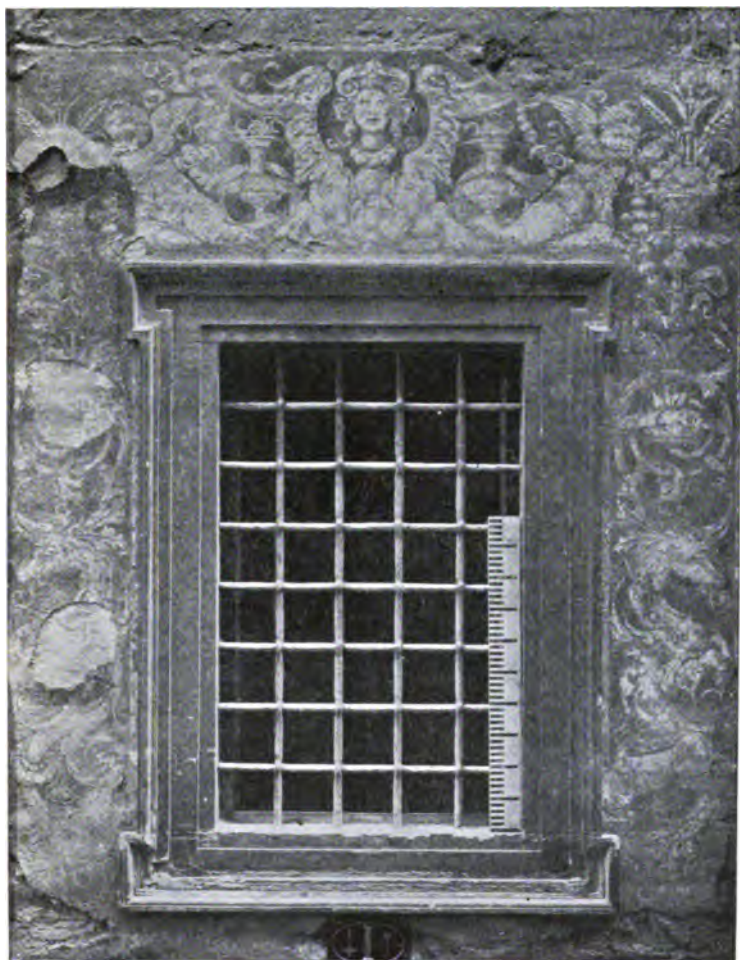


FIG. 108. Florence, detail of Palazzo Corsi, Sgraffito Decoration

pieces. The one given, Fig. 108, is from the old Palazzo Corsi near San Gaetano in Florence.

When considered as a polychromatic decoration, or even as a decoration in monochrome or nearly so, this effect is brought about by laying a coat of light plaster over a dark coat, or the reverse, and scratching through the outer so as to expose the inner mass of the plastic material.

In all these modifications of the art and practice of painting, caused by peculiarities of the ground, the differences caused by the changing material and the greater or less facility with which the artist can work upon it are of extreme interest to the student. The touch of the draughtsman who is scribing with a sharp tool a yielding but still firm and resistant surface, like that of plaster, is very different from that of him who guides the point of a brush over canvas or panel. The art of drawing, too, if considered in detail, is seen to involve the use of many different methods of procedure involving sometimes considerable physical exertion. The result of these differences has been that, with the disappearance of the old feeling of solidarity among the arts, the processes of drawing and painting on a large scale and in what is considered rather a mechanical way, have lost their artistic value. A great change would need to appear in the spirit of the modern artist painter before he would be found ready to give his own personal attention and his personal effort to the production of exterior ornamentation of this character.

Chapter Sixteen

JOINERY

JOINERY, in its larger and more showy developments, might be treated in connection with Building, of which, indeed, it may form an important though secondary part. The form of the house, its architectural style, does not depend upon the finer woodwork of the interior, and therefore this art has no place in such a discussion as our Chapter XIV. In its general character, as elaborate woodwork, it is an art by itself: and the matter of furniture may be considered in connection with architectural joinery. The processes of work are familiar, being in their essence the same as those of any village carpenter, although the worker in fine and hard woods uses certain delicate tools unknown to the house carpenter. The newer wood-working by machinery must be excluded altogether from our present subject: for artistic joinery is a manual art, and has no use for the power-plant.

The distinction here made between carpentry and joinery would have been hardly so perceptible to a fifteenth-century workman as it is in modern

times. He, the earlier workman, would have thought the making of a door which was to be painted very nearly the same piece of work as the making of a door of which the natural wood, its color and veining, were to show. The old workman would have given a little more pains and thought to the selection of the wood, and even to its finish, in the one case than in the other; but the modern man, when paint is to hide all the details of the make of his door, builds it up in a curious sort of way by separate pieces nailed on with short nails and brads, the panel no longer inserted, as in old work, on all four sides into grooves in its frame, but held at top and bottom only (and only in the middle of the top and bottom edge, so that it will remain free to shrink from both sides toward the middle) while the borders of it are concealed by mouldings "planted on." Those mouldings and each separate part of the door have been shaped and planed in a power mill, and the workman gives but a very little additional labor to bringing any of the surfaces to a more perfect smoothness. The painter arrives and covers up everything with a solid coat of white lead and oil, perhaps colored by some other pigment. Very different is the work of him who has a hard-wood door to make, if there is any kind of architectural supervision to be expected or if the standard of his workshop is a high one. The nail-heads must not show; they must not even come to the visible surface. The mould-